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REMARKS

UPON

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AND

PESTILENTIAL DISEASES.

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HORNED CATTLE.
WHEREIN

This heavy Calamity, both from Reaſon and Analogy, is ſet in a New and Clear Light; and certain Eaſy Means of Prevention and Cure are recommended upon Rational and Experimental Principles.

By WILLIAM HIRD, *M.D.*

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PREFACE.

I Call to mind an expreſſion of Tully, *to this effect,* " *He who would avoid* " *the reprehenſion of a cenſorious* " *world, ought to preſerve a ſtrict guard* " *over his pen, and conceal the ſallies of* " *ſentiment from the public eye; for in* " *this reſtriction, and this only, lodges* " *the poſſibility of his ſecluſiou from re-* " *proof.' But the obſervation, though never ſo true, if extended beyond its proper limits, may terminate in a timidity, which is not only abject but inexcuſable; for there is, in my apprehenſion, a duty, every man, as a conſtituent in ſociety, ſtands indebted to the common-weal, which no conſideration of private emolument ought to ſuperſede: if he is miſtaken in his conceptions of this duty, he has, in common equity, a right of appeal to the courteſy, though not to the more favourable graces of the public.*

One truth I am too well appriſed of, that the ſubject of the following Eſſay is intereſting ſufficiently to employ the attention and activity of the beſt qualified; and howſoever the execution of it may be judged to deviate under my conduct, yet as it has bore an exact proportion to thoſe talents I am poſſeſſed of, I hope there is a criticiſm in being ſo equitable and ingenuous, as to pay ſome regard to principles of action; and as I am conſcious of no other than benevolence, and a deſire of contributing a part in the important deſign, I am in good meaſure emancipated from the ſlavery of apprehenſion.

In the preſent addreſs I am equally diffident of my abilities to inform, as I am ſenſible of the deference which is due to the voice of public deciſion. It is too notorious, the preſs is every day pregnant with incumbrances, and I ſhould be very ſorry the firſt labours of my pen ſhould be deemed a production of the ſame claſs, which ſentiments of humanity make me rather wiſh, may prove a mite into the treaſury of common benefit. Indolence

and

and inattention, even in ſcenes of genius and high life, are productive of no good; and occaſions of doing ſervices to our fellow creatures are neither locally nor perſonally confined.

The Mortality has prevailed a conſiderable time under my immediate eye, and the afflictive evidences of its effects are every day recent upon many poor families, who are neceſſitated to implore the commiſeration of the more affluent. Theſe objects were ſufficient incitements with me to reflect and act; and I heartily wiſh Phyſicians of diſtinguiſhed eminence would make it a part of their peculiar province; for beneath their notice it is not: and thoſe only who have made the art of phyſic, upon rational principles, their proper ſtudy and buſineſs, do I even allow as adequate judges of the diſtempers to which brutes are liable. The laws of medicine, the cauſes of health, and the criteria of diſeaſes, are uniformly and eſſentially the ſame throughout the whole animal creation.

It is not improbable, that the reader will remark a diſunity in the parts of this

this Eſſay; the reaſonings may appear too inconnected, and the digreſſions too long and too frequent. I am myſelf ſenſible that it has too many defects; but the immediate neceſſity I imagined there was for ſome addreſs of this kind to the conſideration of the public, and the advantages I flattered myſelf might accrue from it, made me willing to ſubmit it in the dreſs it at preſent appears. Motives of this kind may ſoften any ſeverity that is due to inaccuracies of expreſſion, and this more eſpecially, if the ſentiment itſelf is diſtinguiſhable for its propriety.

I am likewiſe convinced, that in treating any ſubject which has its direction towards common utility, we ought always to have an eye to clearneſs and preciſion; every exuberant image ſhould be checked in its riſe, and nothing ſhould take place, but what flows from that neceſſity which harmonizes the whole; but if I am led, by the copiouſneſs of the ſubject, and the importance of its tendency, to expatiate further than it will expreſly bear, theſe very reaſons will, I hope, recommend me to ſentiments of candour.

REMARKS

ON

PESTILENCE, &c.

THE Mortality prevailing amongſt our horned cattle either has, or ought to become a very ſerious, as it certainly is a very intereſting ſubject, conſidering its long continuance amongſt us, the progreſs it is ſtill making throughout moſt parts of this iſland, and that train of calamities which have generally attended it: no precautions, however plauſible, or attempts however varied, having hitherto proved effectual enough to elude or counteract the ſubtilty of its infection. As it has totally diſappeared in many places, and yet after an abſence of two or more years, has returned with the ſame or greater violence, (an inſtance of which we have juſt now in the neighbourhood of *Leeds*; and no doubt its influences are repeatedly deſtructive in various other parts of the kingdom) every thinking member of

the community muſt be alarmed with dubious proſpects, where it will at laſt terminate. Vaſt ravage it has every where made; many lands have been laid waſte; numberleſs families have been ruined; and we all are convinced of the importance of the object it acts upon to various of the comforts and neceſſities of life.

Numerous have been the propoſals for a cure from all quarters; yet how little ſatisfaction they have given, is apparent to every one, being moſt or all of them utterly diſregarded, either for want of a ſufficient number of well-atteſted facts, or if they carry not theſe convincing proofs along with them, muſt have been very defective in probability of hypotheſis.

The expreſs nature of the peſtilential miaſma, and its various modes of exertion upon animal bodies, we muſt confeſs ourſelves to be abſolutely ignorant of; and hence flows the uncertainty of our efforts to oppoſe its fatality. The mention of a ſpecific has ſomething very ſtriking in it, as it ſooths our anxieties, and indulges our indolence: but if we conſider attentively the many recommended to us as ſuch, we ſhall find them extremely fallacious. Certain it is, that a ſpecific medicine, truly ſo, would be of ineſtimable value, and happy is the man who is in poſſeſſion of the ſecret; yet long, I am afraid, notwithſtanding the over-flowing fulneſs of nature, will this remain as it has hitherto done, one of the grand deſirables in the art of phyſic: thoſe very few, which we have to boaſt of with any degree of plauſibility under

that

that appellation, are only ſo under certain relative and limited circumſtances, and their riſe has been perfectly caſual: moreover every ſpecific, conſider'd abſolutely as ſuch, muſt be adapted in its powers, and ſimply uniform in its effects; but in the caſe of the horned cattle, a multiplicity of methods and mixtures extoll'd for the cure of the reigning contagion, bewilders the judgment, and renders us undeterminate in our choice; beſides the well-known inſufficiency of all or moſt of them, is convincing enough of their being merely conjectural.

Since therefore we are obliged to acquieſce in the imperfection of our knowledge, what method ought we to follow?— What means are moſt eligible in this maze of judgment?— Certainly thoſe of rational creatures:— Some we ought to eſpouſe; and every reaſonable attempt to ſtem the torrent of ſo alarming a calamity is laudable, though upon future experiment ineffectual. What I have to propoſe, has, I hope, the ſtamp of great probability upon it, the warrants of obſervation in analogous caſes, and in this before us not wholly diveſted of them. Such therefore as it is, I ſhall ſubmit to the public notice, and with hearty wiſhes for its ſucceſs, await the public experience.

As the diſtemper in the advances it makes, is exceedingly vague, irregular, and oftentimes very unexpected; I would adviſe every one, upon the earlieſt knowledge of its approach, within the diſtance of at leaſt four miles of his neighbourhood, and whilſt his own cattle, to all appearance, remain perfectly free from the

infection, to place a large ſeton in ſome proper depending part of the body.

The dewlap of the beaſt, from its ſituation, and other ſolid reaſons, offers the faireſt for this operation, as it appears to be no other than a ſimple duplication of the ſkin, connected by a common cellular membrane, and is depending, eaſily dilatable, and free from any muſcular integuments; conſequently it is a part, every way beſt adapted to any habitual drain, leaſt of all offenſive or painful to the beaſt, and as little as poſſible obnoxious to any of its ſeveral motions.

The aperture ſhould be made through both the oppoſite foldings, as low as poſſible, betwixt the head and breaſt, and at a convenient diſtance from both. It ſhould be performed with ſome ſharp inſtrument, and ſo large, as that the diſcharge may be free and conſiderable; moreover it ſhould be continued at leaſt two months, or till all ſigns of contagion have left your borders. The management of the ſeton is ſo well known, that to give further directions about it would be needleſs waſte of time.

I acknowledge this method may with more propriety be termed preventive than curative, but as every one muſt be convinced how much more eligible and eaſier it is to prevent than to cure a diſorder, how much ſafer to fly from a foreſeen impending tempeſt, than to wait for and war againſt the immediate effects of its ravages; ſo have I been flattered, if the practice itſelf be found of ſufficient validity, the propoſals for it will not be looked upon as immature.

mature. I ſhall likewiſe in the courſe of this Eſſay, recommend ſome other practical cautions and remarks, as in a caſe, intereſting as the one I am treating of, every probable and aſſiſting means ſhould be united to bring about the ſalutary and important event.

Of the efficacy of iſſues or ſetons in ſimilar caſes, we have a variety of memorable inſtances from phyſicians of very reputable veracity.

Fabricius Hildanus, an excellent and approved one, and who was himſelf concerned in attending the ſick, during the time of that great peſtilence which raged at *Lauſanne*, in the year 1612, where ſcarce ſixteen out of an hundred eſcaped, relates, That only one or two of all thoſe, whom he had remarked to have had iſſues either in their arms or legs, died of the diſeaſe, and thoſe few exceptions he attributes to an extreme bad habit of body: he likewiſe gives us ſeveral inſtances of the preſervative effects of iſſues, both in himſelf and many others. *

In the plague, which raged with the greateſt violence at *Nimeguen*, and throughout the greateſt part of *Upper Germany*, in the year 1636, and is ſo accurately and fully deſcribed by *Diemerbroeck*, we have many convincing evidences

* Neminem autem, quod notandum, eorum qui ſonticulos in brachiis aut cruribus habuerunt, præter unum aut alterum ſumme cacochymicum, peſte obiiſſe memini, & proinde præſervativum eſſe præſentaneum tempore peſtis, cum in aliis multis, tum in memetipſo obſervavi. Ego enim duos habeo, alterum in brachio ſiniſtro, alterum in poplite dextro.

See Gulielmi Fabricii Hildani Oper. Cent. 4. Obſ. 23.

of the ſalutary effects of iſſues. He ſpeaks of them with the higheſt encomiums, and advances his own repeated experience in their favour, preferring them as the moſt certain ſafeguards againſt infection; or if any, having iſſues, were notwithſtanding attacked with peſtilential ſymptoms, theſe were quickly relieved by taking ſome mild diaphoretic, which aſſiſting the powers of nature, ſhe threw off the contagious *fomes* through ſuch artificial outlets. *

Mercurialis likewiſe, a phyſician of no mean repute, gives us a very poſitive and diſtinct relation to the ſame effect, in the plague at *Venice*, and introduces many coincident teſtimonies from other cotemporary practitioners, with only one exception which he is very particular in remarking †.

The

* Cauteria verò, ſeu potius fonticulos per ea excitatos, (*ad Præſervationem a Peſte*) ſummopere approbavimus, & utiliſſima fuiſſe obſervavimus; per eaque in brachiis, vel ut plurimum in cruribus, fonticulos multis fecimus, atque illos toto peſtis tempore apertos ſervavimus, per quos multi ſuperflui, acres, noxii, corrupti, ac fœtidi humores paulatim effluxerunt. Tali ratione multi præſervati ſunt, imo vidimus aliquos his præmunitos, qui peſtis invaſionem ſentientes, ſtatim in ipſo principio antidotum ſudoriferum aſſumpſerunt, atque ita certiſſime liberati ſunt, natura expellente per fonticulos, atrum quendam ac venenatum tabum. *Iſbrandi de Diemerbroeck Tract. de Peſte*, Lib. II. cap. 8. The ſame author gives a remarkable hiſtory to the purpoſe, and in his Annotations upon it calls iſſues *præſtantiſſima ſubſidia*.— Lib. IV. Hiſt. 110.

† Dicam, quod ego experientia vidi: poſſum teſtari me innumeros hac peſte vidiſſe extinctos, nec unquam vidiſſe quemquam qui haberet cauterium, præter unum tantum,

The aſſertion of *Guarnerus* is full as ſtrong, where he abſolutely teſtifies, That in the plague which made great havock at the above-mentioned place, in the year 1574, not one of all his patients, who had an iſſue, died of the diſeaſe. *

Moreover, the obſervations of *Quercitan*, in his *Alexicacus Peſtis*, abundantly co-operate in their evidences. His remarks are, That many able ſurgeons of his acquaintance, whoſe office obliged them to wait upon the peſtilential ſick, took care, before they entered upon ſo dangerous an employment, to ſet iſſues in ſome parts of their own bodies, and by this happy precaution, moſt admirably preſerved themſelves. †

Many, what if I ſay numberleſs, are the teſtimonies which may be collected from authors of approved credit, in favour of iſſues, and their ſalutary tendency in peſtilential ſeaſons, not only upon healthy, or what phyſicians call *euchymous habits*, but upon thoſe whoſe juices

tum, atque ille erat ſacerdos: interrogavi etiam de hac re multos medicos, qui teſtati ſunt, neminem ſe vidiſſe. Quod quidem argumentum eſſe poteſt, hoc genus auxilii magnopere conducere: & ſumma cum ratione, quandoquidem per cauteria, tanquam per cloacas, continuo ichores pravi & putredeni obnoxii educuntur. Lib. *de Peſte*, cap. 20.

* Lib. *de Peſte*, cap. 9.

† Novi autem multos chirurgos, peſtiferorum curationi deſtinatos, viros in arte ſua expertiſſimos, qui ad propriam præſervationem, antequam infectorum curationem aggrederentur, cauteriis melius, quam alia quavis cautione ſibi proſpexiſſe & conſuluiſſe aſſeverant. Lib. II. cap. 3.

were become vitiated and depraved from various cauſes. Such are, *Johannes Arculanus*, whoſe name ſtands amongſt the firſt, who applied iſſues in the time of the plague; *Nicolaus Florentinus*, *Paraſinus*, *Ingraſias*, *Paræus*, *Antonius Portus*, *Nicolaus Maſſa*, *Palmarius*, *Hercules Saxonia*, and many other eminent practitioners, whoſe evidences all unite in the ſame channel, and are delivered with a degree of confidence, which appears to have flowed from a happy obſervation. But amongſt all the reſt, it would be a very blameable omiſſion to forget the name of the excellent *Hoffman*, a name which all phyſicians will ever mention with honour: he gives iſſues the title of *Egregia Prophylactica*, by way of eminence, in times of the plague; and after mentioning the obſervation of *Hildanus*, atteſts to its probability from the experience of ſeveral practitioners, his friends and correſpondents, who were preſent during the plague, which raged at *Erfurt* in *Upper Saxony*. *

If we endeavour to trace the riſe of this practice, it ſeems more than probable to have begun from a common obſervation, that thoſe people were in a general way preſerved from the plague, or the fatal effects of it, who conſtantly carried

* Et idem mihi quoque a medicis qui peſti Erfurtenſi interfuerunt, relatum olim eſſe memini.

Tom. II. pag. 95. *de Feb. Peſtil.*

And again he expreſſes his ſentiments thus:

Peſte cæteris que omnibus, qui contagio lædunt, morbis a corpore arcendis magno præſidio ſunt fonticuli, ſive ulcera arte facti. Tom. I. p. 205.

ried about with them old chronic ulcers of whatſoever ſpecies, by which, as by habitual outlets, the conſtitution had been long accuſtomed to throw off any kind of humours that were deleterious to it.

The writings of *Galen* will abundantly bear us out in aſſerting the antiquity of ſuch obſervations, where he expreſly aſſures us, that ſcarce any who had running ulcers, were known to die of the plague *. And this opinion of their preſidiary virtues became in his time ſo eſtabliſhed and popular, as to ſubject all that anxiety and terror, which is ſo uſual upon ſuch dangerous occaſions: and this intrepidity of the mind, and delivery of it from all ſlaviſh apprehenſion, *Hoffman* advances as a probable and additional reaſon for the ſurprizing effects of ſpontaneous or artificial ulcers, in the time of the plague †.

Amongſt

* *Method. Medend.* Lib. V. cap. 12.

† Forſan etiam confidentia, quam geſtantes fonticulos, de hoc tamquam certiſſimo fovent præſidio, metum excutit & reſuſcitando animi vires juvat, eodem modo, ac de amuletorum adverſus peſtem virtute cenſendum.

Tom. II. *de Feb. Peſt.* p. 95.

I cannot omit an obſervation here, which, though a little foreign to the matter in hand, yet appears intereſting enough to gain the partiality of the reader; and that is, of the ſurprizing influence the mental affections have in diſpoſing the body to receive infection ſooner, or in retarding its attacks. To this truth many practical authors bear evidence. Amongſt which I ſhall ſubmit a few inſtances.

Diemerbroeck, in the treatiſe which I have before quoted, has a whole chapter *de Animi Pathematibus*, where are ſome very remarkable paſſages, which I will venture to extract,

Amongſt the moderns, *Diemerbroeck* relates that many who had chronic ulcers in their limbs were

extract, as the character of this phyſician, the great experience he had, and the accuracy of his remarks, will leave us no room to doubt their authenticity. He ſays,—— "Nullus eſt animi motus qui peſtilentis dominii limites "longius & citius extendit quam terror, ſive ex conſter- "natione funeris viſi, vel hominis infecti occurrentis, vel "mali nuntii, vel terribilis imaginationis, alteriuſve rei "incutiatur. Hunc ſolum durante maligna hac conſtitu- "tione, peſtem multis advocaſſe novimus."— And in another place his expreſſions are, "Animus præſens & "imperterefactus minime omnium afficitur, & audaciores "minus a peſte infeſtantur, ac correpti, minus periclitantur; quod exemplum multorum veſpilonum, alio- "rumque qui quaſlibet ædes infectas audacter frequentant "ſæpius docent: contraria autem timidis evenire, ut jam "diximus, experientia certiſſimum facit, & utrorumque "plurima exempla in hâc peſte vidimus."

Neither can I omit his reaſons for theſe effects, as there appears a juſt propriety in them.

"Cauſa dependet a ſpirituum motu, qui in his fortis & "conſtans procedit, ſine ulla cordis alteratione aut læſione; "in his vero maximè inordinatus fit, cum ſumma cordis "alteratione ac debilitatione; cujus debilitatis ratione cor "peſtilens venenum minus a ſe diſpellere valens, ab eo "occupatur." Tract. *de Peſte*, Lib. II. cap. 8.

That the ſame obſervation was anciently notorious, is apparent from *Homer*, *Thucydides* and *Plutarch*; and the methods they relate, as in vogue amongſt the *Greeks*, to award the attacks of infection, or protract fate, being ſuch as had a direct tendency to ſooth and pacify the paſſions, and to divert the fatal influences of ſorrow and deſpondency. *Thucydides*, in his admirable deſcription of the plague at *Athens*, delivers himſelf thus: "Yet the moſt affecting "circumſtances of this calamity were, that dejection of "mind which conſtantly attended the firſt attack; for the "mind ſinking into deſpair, they the ſooner gave them- "ſelves up without a ſtruggle."

Smith's *Tranſlation of* Thucydides.

were equally preſerved with thoſe who had iſſues, the tendency of each being uniform, as their ends were equivalent.*

Forreſtus has an obſervation circumſtantially the ſame,† and *Ambroſius Paræus* affords a very memorable one, where he teſtifies that the moſt ſordid ſores, if open and running, whether of a cancerous, venereal, ſcrophulous, ſcorbutic or leprous quality, acted equally as ſo many different drains to eliminate the peſtilential virus from the habit. ‡

Notwithſtanding the generality of authors have imputed the riſe of this practice to obſervations of this kind, which indeed appears the moſt probable, yet there are not wanting very eminent phyſicians, who are of opinion, that the firſt inſtitution of it upon the human body, aroſe from a common remark of its ſalutary effects upon diſtempered brutes, amongſt which number that of *Glandorpius* ſtands with no mean authority; "Hoc tamen remedium ab arte veterinaria vi-
" detur eſſe depromptum: ſi modo liceat præ-
" cautiones brutis animantibus accommodatas
" in

* Nos durante hac peſtilenti conſtitutione vidimus non nullos qui antiqua ulcera in cruribus habebant, quæ ipſis loco fonticulorum inſerviebant cum æquali præſervationis favore. Tract. *de Peſte*, Lib. II. cap. 8. Annot.

† Libr. VI. Obſervat. 15.

‡ A peſte minus tentate fuerunt ii, qui cancros ulceratos habebant, quibus nares fœda ozœna defluebant, qui lue venerea abſceſſibus & ulceribus fœdis corrupti erant, ut & ſcrophuloſos, elephantiacos, leproſos, ſcabioſos, omnes denique eos quibus ulcera erant in corpore fiſtuloſa & fluentia. *See this author*, Lib. XXI. cap. 17.

" in malis haud diſparibus ad hominum ſalu-
" tem & incolumitatem transferre:" ‖ The relations likewiſe that *Platerus* and ſeveral other authors of note give, ſeem favourable to this conjecture.

Certain it is, that early as the days of *Columella*, who flouriſhed in the reign of *Claudius Cæſar*, a method obtained amongſt the herdſmen of perforating the ears of the cattle, and cloſing the wound with the root of the *conſiligo* (a ſpecies of hellebore;) an operation which this elegant writer ſtrongly recommends as an excellent preſervative againſt infection. " Ea (nempe radix) in marſis
" montibus plurima naſcitur, omnique pecori
" infecto maxime eſt ſalutaris." And his notions of its manner of acting ſeem juſt and rational.
" In eam perforatam auriculam omnis vis morbi
" peſtilenſque virus elicitur." §

Glandorpius relates that the ſame practice was common amongſt the graziers and herdſmen of his country, with this difference, that the root of the *tithymalus* was ſubſtituted for that of the *conſiligo*; and hence, the cuſtom of ſettering, in vogue amongſt our own countrymen, may in ſome meaſure be looked upon as traditional.

The relations which *Platerus* and ſeveral other practical writers hand down to us, ſerve to make this opinion concerning the origin of the practice more plauſible, ſome of which it may not be amiſs to take notice of.

Platerus acquaints us, that at *Leyden*, during the plague there in the year 1564, a certain anchoret

‖ De Fonticulis & Setaceis, pag. 93.

§ De Re Ruſtica, Lib. VI.

anchoret of that country was very officious about numbers of the diſeaſed, whoſe ſcrota he perforated, and filled the wound with the root of the black hellebore, the good ſucceſs whereof he was not only himſelf very confident, but as poſitive in his promiſes to his patients. *

Guilhelmus Magiſtrius deſcribes the ſame operation, and his ſentiments of its efficacy, in theſe terms, " Totum peſtilens venenum hellebori " vi ad illum locum attractum & æger ab omni " prorſus periculo liberatus eſt." †

Angelus Sala extols the practice above meaſure, attributing to it a degree of magnetiſm, and aſſerting, that the cures he had wrought by means of black hellebore, applied after the manner above mentioned, in times of peſtilence, even appeared to his apprehenſion miraculous. ‡

Whatever may have been the ſpecies of obſervation, which originally gave riſe to the practice of ſetting iſſues or ſetons, by way of prevention, againſt

* Peſte Anno 1564, Lugduni regnante, Monachus quidam, non cauteriis aut veſicatoriis, ſed alio attractorio uſus fuit; nempe perforabat in viris ſcrotum & vulneris imponebat radicem hellebori nigri, ſicque viros a peſte tutos fore pollicebatur.

Plater. Prax. Tract. II. cap. 2.

† *Iſag. Therap.* Sect. 3.

‡ Inter omnia ſimplicia & compoſita quæ novi, cujuſcunque generis vel ſpeciei, nihil habeatur quod ejuſmodi magnetica & attractiva qualitate præditum ſit, pro faciendа revulſione peccantis alicujus humoris, *&c.*

See his Tractatus de Peſte, latinitate donatus a Gregor. Horſtio.

againſt ſo inſidious a diſeaſe as the plague; I think we may fairly, from ſuch a number of curious approved facts, deduce the following practical corollary.

When the habit of the body becomes contaminated from whatſoever cauſe, or loaded with morbific humours of what nature ſoever, which require ſome local diſcharge, in order to reſtore it to its priſtine healthy temperament, iſſues, or artificial drains, muſt certainly prove beneficial to it, and not otherwiſe.

About the time that my thoughts were employed in reducing the few ſcattered reflections of this Eſſay into ſome degree of order and method, I had occaſion caſually to conſult *Bernardini Ramazzini* upon a ſubject extremely foreign to the one before me, but finding in this curious author a treatiſe ſo expreſly relative to my own purpoſe, that I cannot but acknowledge the complacency I received from remarking ſome very material and appoſite facts interſperſed thro' it, and the exact uniformity of that writer's ſentiments with my own upon them. Certainly the mind of man, however diffident of its own private images, is ſurprized with a degree of ſelf-gratulation upon perceiving their concurrence with thoſe of ſuperior and better cultivated ſpirits, and the inference that it will naturally draw is this, that its own ſenſations are juſt.

This treatiſe of *Ramazzini* is intitled "*De Contagioſa Epidemia*, quæ in Patavino agro & tota ferè Veneta ditione in boves irrepſit." It is dedicated to the Duke of *Venice* from the profeſſorial

feſſorial chair of *Padua*, and contains a very full and accurate detail of the train of ſymptoms which appeared upon the infected cattle of that country; in which relation I have remarked a very exact and circumſtantial congruity with thoſe which are obſervable in the diſtempered amongſt our own herds, and I have no reaſon to doubt but they proceed from the ſame circulating peſtilential cauſes. Some little difference there may be in particular appearances, but theſe muſt always be expected in the courſe of the ſame epidemic through differing climates, the varied temperaments of individuals, and their aptitudes to receive infection, with the aſſemblage of mixed co-operating incidents, which it muſt unavoidably meet with in its paſſage; conſequently this diverſity of appearances ought to be looked upon as merely adventitious.

This dreadful contagion, which firſt appeared in the neighbourhood of *Vicenza*, and thence ſpread amongſt the horned cattle throughout the country about *Padua*, and the greateſt part of the territories of *Venice*, with ſurprizing rapidity and deſolation, was brought from *Dalmatia*, and the adjacent countries, by an infected cow, which had ſtraggled from the reſt, and was found by an *Italian* grazier, who herding it amongſt ſome ſound cattle in the paſtures of a certain canon of *Padua*, the contagion, by that means, became general, and the whole flock miſerably periſhed, with only one, and that a very obſervable exception: one ſingle cow, out of the whole herd eſcaped the common fatality

that

that ſwept away its fellows, and this one had a running ſeton in its neck. *

Can any thing be more convincing or circumſtantial than this inſtance? or can we heſitate whence to derive the means of ſo remarkable a preſervation? This beaſt was expoſed to the common danger, was liable to the ſame diſeaſe, and no doubt would have ſuffered in common with the reſt, had not the ſeton ſerved as an open outlet, to which nature directed all her powers, and through which ſhe readily expelled the peſtiferous *ſeminium*, as it entered her borders, or before it had diffuſed its leaven through the whole habit, and reduced the maſs of juices to the ſame degree of contamination with itſelf.

Upon a level with this opinion appears that of *Ramazzini*, in another part of the ſame treatiſe, upon the *Methodus Prophylactica*, where he recommends ſetons or artificial apertures to be made either by cauterizing the neck †, or by ſetting large open ſetons in the dewlaps of the cattle ‡, as the moſt excellent and approved means of premunition from infection, or its pernicious conſequences; and this from very ſubſtantial and deciſive reaſons drawn from inconteſtable

* Uno tantum (ex toto grege) ſuperſtite, cui in collo factum fuerat ſetaceum.

See this author De Contagioſa Epidemia, *&c. Ed.* Lond. 1717. pag. 456.

† Inuſtiones lato ferro candenti faciendæ in collo utrinq; ſublata enim eſchara, apparebunt ulcera, quæ veſicantium loco eſſe poterunt.—*Tract.* id. page 461.

‡ Similiter ſub mento perforanda palearia, injecto poſtea funiculo, quem ſetaceum vocant.—Idem.

teſtible facts, and his own experience of the manner in which nature always relieved herſelf from under the oppreſſion of the diſeaſe, which he obſerves was always by large blotches or puſtules full of a fetid ſanious matter, either upon the ſkin in general or on particular parts of it:* moreover that no cattle were ever known to eſcape, without ſome ſuch local diſcharges, more or leſs ſenſible, according to the degree of malignancy of the infecting virus; neither were any ever obſerved to periſh, or ſuffer a return of the ſame diſeaſe, that were thus purged by cuticular eruptions, which altogether evince the diſcharge to have been critical.†

Agreeable to theſe obſervations of *Ramazzini* appears one of *Fracaſtorius* upon the ſame ſubject, where he informs us that whenever the diſorder became local and eruptive, it was always found to be critical and determinate; on the contrary, if no ſuch change happened, the infection became prevalent, and the cattle generally died.‡

* Indiget enim natura aliquo emiſſario per quod venenum iſtud exantlet; nulli enim comperti ſunt evaſiſſe boves, niſi per puſtulas in cute excitatas, multum craſſæ ac fœtidæ materiæ fundentes, nec bovem ullum, qui ſic purgatus fuerit, recidivam paſſum fuiſſe adhuc accepi.

Ramaz. de Contag. Ep.

† Appoſite to theſe remarks is the expreſſion of *Hippocrates*, Quicquid ſuppuratur, non revertitur; ipſa enim maturatio, & judicatio ſimul & abſciſſus. *De Morbis Popularibus*, Lib. VI. Sect. 3. *ex verſ.* Jan. Cornar.

‡ Ii boves, quibus labes a faucibus ad armos deſcendebat, & inde ad pedes, ſanati fuerunt, quibus autem hæc permutatio non fiebat, utplurimum interierunt.

Fracaſtor. Oper. de Morbis Contag. Lib. I. cap. 12.

The preſent mortality amongſt our own horned cattle, which made its appearance in this nation ſeveral years ago, and thenceforward has circulated from county to county in a moſt myſterious and ſurpriſing manner, I am well ſatisfied is the very ſame with that which has wandered with an equal degree of deſolation throughout moſt of the kingdoms of *Europe*, and ſeveral other parts of the world, as is very evident from various records that are left us of its ravages by different authors. It has viſited *Sweden*, *Denmark*, the ſeveral diviſions of *Germany*, *Hungary*, the provinces of *Turkey*, *Dalmatia*, *Italy*, *France*, *Holland* and *England*, not once only, but frequently. Neither is the diſtemper of modern birth, we diſcover the footſteps of the ſame epidemic, early as the ancient *Greeks* and *Romans*, and thence deſcending down the ſeveral ages of the world, to the preſent time.

In the writings which are extant of *Vegetius Renatus*, a perſon of very conſiderable figure, who lived in the reign of *Valentinian* the brother of *Gratian*, and wrote five books upon the military art and the art of farriers; we have a treatiſe expreſly upon the diſeaſes of oxen, in which he gives us a particular relation of a very malignant one, and which by the tenor of its ſymptoms appears to have a great degree of affinity with the infection now reigning; the leaſt commerce of any kind was deemed ſufficient to communicate the taint; not only the ſtables, cribs, and fields they frequented and grazed in, but even the ground they laid upon, the ponds they watered at, and the effluvia ariſing from their burying

burying places, were looked upon as equally contagious to any ſubſequent herd; in conſequence of which, no ſound cattle were allowed to come near them, an extreme vigilance being thought neceſſary to remove and keep them at a diſtance from the diſeaſed.

From this time, it is very poſſible to trace downwards the marks of the ſame contagion, with only different directions to this or that ſpecies of animals, and ſome variety in the modes of its exertion, and the tendency of its ſymptoms.

In one of *Virgil*'s *Georgics*, we have a minute deſcription of a very afflicting peſtilence, which appears to have raged throughout the greateſt part of the animal creation; his relation, I think, in a great degree, compatible with what may be given of the predominant mortality, allowing for poetical hyperboles and the univerſality of the diſeaſe, whereas ours has a particular direction to one ſpecies. I have extracted part of this intereſting narrative in *Virgil*'s genuine language, as the writings of this inimitable poet are diſtinguiſhed for that expreſſive elegance, which no tranſlation can faithfully imitate.

——— *Morbo cœli miſeranda coorta eſt*
Tempeſtas, totoque autumni incanduit æſtu,
Et genus omne neci pecudum dedit, omne ferarum
Corruptique lacus, infecit pabula tabo.

In the progreſs of the deſcription he ſays,

——— *Quatit ægros*
Tuſſis anhela ſues, ac faucibus angit obeſis.
Labitur infelix ſtudiorum, atque immemor herbæ

Victor equus, fontiſque avertitur & pede terram
Crebra ferit: demiſſæ aures: incertus ibidem
Sudor, & ille quidem morituris frigidus: aret
Pellis, & ad tactum tractanti dura reſiſtit.
Hæc ante exitium primis dant ſigna diebus.
Sin in proceſſu cæpit crudeſcere morbus,
Tum vero ardentes oculi atque attractus ab alto
Spiritus interdum gemitu gravis; imaque longo
Ilia ſingultu tendunt: it naribus ater
Sanguis, & obſeſſas fauces premit aſpera lingua.

That the peſtiential virus is individually one and the ſame in its nature, and that its propenſities in its progreſs, to one creature more than another, ariſes not ſo much from any abſolute diverſity in the fomes itſelf, as from the different qualities of thoſe mediums through which it is convey'd, and the particular aptitudes of different beings to receive contagious impreſſions, may probably appear, in the courſe of this Eſſay, no very irrational concluſion.

Fracaſtorius gives account of a mortality, which ſpread amongſt the horned cattle about *Friuli*, the city of *Verona*, and the ſtate of *Venice*, in the year 1514, * with ſymptoms ſo exactly congruous, and in its riſe and termination ſo much reſembling the diſtemper about *Padua*, which *Ramazzini* treats of, that this author cannot avoid determining them, either, to be the ſame diſeaſe, or, one the genuine offspring of the other, though there was a long interval of years betwixt their ſeveral appearances.

About the beginning of the ſeventeenth century,

* *De Morbis Contagioſis*, Lib. I. c. 12.

tury, the ſame mortality appeared again in the neighbourhood of *Venice*, and in *Ramazzini*'s deſcription of its progreſs about eleven years afterwards, throughout the country of *Padua* and *Vicenza*, there appears ſo very evident a reſemblance betwixt it, and the diſtemper now prevailing amongſt the cattle of our own nation, the ſigns of its approach, the marks of its immediate preſence, and the indications that ſerve us to prognoſticate a happy or fatal event, ſo perfectly analogous to each other, that for my own part, I cannot avoid concluding them, one and the ſame diſeaſe, ariſing from the ſame circulating cauſes.

I ſhall give the reader an account of the ſeveral ſymptoms, as they generally ſucceed each other in this country, and leave him to determine what degree of ſymboliſm there is betwixt the diſtemper prevailing here, and the ſame mortality, as it appeared in foreign parts a great many years ago.

It is a very difficult matter, at leaſt in my apprehenſion, to give a regular ſuccinct hiſtory of this diſeaſe, as indeed it is, of the diſeaſes of brutes in general, they having no methods of complaining but from apparent diſtreſs: the relations we have from farmers are too imperfect and variable, and their obſervations are generally more directed to the urgency of particular ſymptoms, than to gain a diſtinct knowledge how they ſucceed each other, and the tendency of each appearance. As for my own part, though I have ſeen numbers under the ſeveral ſtages of the diſtemper, and have endeavoured with my ſmall talent of judging to form ſo adequate an

idea of it, as to be enabled to impart it to others, yet I muſt acknowledge, my remarks have been too limited, and the occaſions of them too infrequent, to determine with preciſion, or deſcribe with accuracy. In the account I lay down, there is a more particular regard to ſuch ſymptoms as diſtinguiſh the diſeaſe, and are its individual concomitants, than an unexceptionable narrative drawn up according to the rules of art.

This diſeaſe generally makes its ingreſs by a dry, ſhort, huſky cough, which preceeds the ſeverer ſymptoms eight, ten, twelve or fourteen days. This is too frequently overlooked, either through the ignorance or indolence of the poſſeſſor, till rumination perfectly ceaſing, an obſtinate refuſal of all food and water, and in milch cows, a gradual abatement to a total loſs of their milk, render the diſeaſe and the danger of it too conſpicuous.

During this period, a ſhivering ſeizes them univerſally, which is ſucceeded by an intenſe heat with uncertain remiſſions, the eyes appear heavy and dejected, the whites generally inflamed, the violence of the cough increaſes, and reſpiration becomes ſo difficult, that they appear to ſtruggle and pant for breath; a ſwelling is viſible externally about the glands of the throat, which in ſome becomes ſo very large, as almoſt to block up the paſſage of the trachæa; the tongue and internal ſurface of the mouth is very ſenſibly hot and ſcabrous; their heads hang down, their ears drop, with little or no motion; in ſhort, an univerſal liſtleſſneſs and unwillingneſs to ſtir, a choice of ſolitude, and a ſeparation from the reſt of the herd,

herd, teſtify the utmoſt anxiety and diſturbance within. It is obſervable that theſe ſymptoms in a general way became more urgent towards evening. *

Though for the moſt part, the belly is at the beginning of the diſeaſe coſtive, yet within a few days, more or leſs, a looſneſs ſucceeds, † the excrements are of a blackiſh green, watry and intolerably fetid. This ſymptom generally attended

* Affectionis genus, quod bubulo generi bellum ad internecionem uſque videtur indixiſſe, ex frigore, rigore horripilatione, mox ex calore acri, & vehementi per univerſum corpus diffuſo, cum pulſus frequentia, febrem eſſe ſatis liquet, malignam vero, exitialem, peſtilentialem etiam ſi mavis, eſſe apertè teſtantur, quæ illam comitantur ſymptomata; qualia ſunt, magna anxietas, & gravis anhelitus, etiam cum ſtertore, & in principio febris, ſtupor & ſpecies quædam veterni, continuus ex ore, & naribus graveolentis materiæ deſcenſus, fœtidiſſima alvi proluvies, interdum etiam cruenta, anorexia, & abolita penitus ruminatio, puſtulæ quinta vel ſexta die per totum corpus erumpentes, ac tubercula variolarum ſpeciem referentia, communis tandem omnium eodem modo circa quintam & ſeptimam interitus, cum boves pauciſſimi evadant, iique ſorte potius quadam, quam remediorum dynami. Hæc quidem ex ſe patent, quid vero intus patiantur miſerandi boves, cum jacent anxii, ac ſtertentes, ac dum ſtant immoti, capite uſque ad terram demiſſo, conjectare quidem poſſumus,

See *Bern. Ramazzin De Contagioſ. Epidemia.*

† It may be remarked, that this looſneſs is no conſtant ſymptom; I have been informed of ſome that have never had it, and yet have recovered, or periſhed, indifferently, within or without its appearance; nevertheleſs, in all thoſe beaſts, which I have had the opportunity of ſeeing under this diſeaſe, it never failed to attend, and that with a remarkably putrid fœtor.

Some have aſſerted, that their excrements are oftentimes mixed with blood, but this I have never obſerved.

them to the laſt, though from its concomitance, the violence of the other appearances did not obſervably abate.

In a general way, the noſtrils diſcharged a rheumy eluvies, of an offenſive ſmell; this diſcharge was evidently thinner, and of a ſanious aſpect in thoſe beaſts which died of the diſtemper, more conſiſtent, and better digeſted in thoſe that recovered; whence, I remarked this, an aſſiſting prognoſtic of the future event.

If the diſeaſe terminates happily, I have generally obſerved the inner ſurface of the mouth, the almonds of the ears, and the glands of the throat, to retain an inflamed aſpect, which gradually abated without any apparent tendency either to mortification, or even to impoſthumate, which in milch cows was preſently ſucceeded by a return of the milk, rumination, and an appetite to food. In moſt of theſe, the hair ſhed in large quantities, and in general the ſkin became moiſt and yeilding, with ſenſible inequalities, or tubercular aſperities in ſeveral parts of it, though without any very material diſcharge. It is likewiſe obſervable, that theſe cuticular tumours are more generally in the younger brutes that recover from the diſeaſe, than in the more aged.

If, on the contrary, the diſtemper had a fatal iſſue, the tumours about the throat became more conſiderable, and towards the cloſe put on a livid aſpect, with an evident approach to mortification, the mouth became cold and rigid, the breath fetid and cadaverous, the eyes appeared languid and ſunk in their orbits, the ſkin was very tenſe and adhered cloſe to the fleſh, which ſymptoms

increaſed every moment, till the horns and dugs growing remarkably cold, evidenced death to be very nigh.

It is worthy of remark, that the recovery of theſe beaſts, if the diſeaſe proves favourable, is exceeding quick and ſudden, as I obſerved this very day, *March* 16, in a milch cow, which, twenty-four hours before, appeared in extreme diſtreſs, and with an afflicting urgency of every ſymptom; yet this day, the prognoſtics which I have juſt remarked as of a benign tendency appearing, every dangerous attendant has removed, rumination has returned, the milk flows pretty free and fluid, and ſhe turns to the crib with ſome degree of appetite.

The continuance of the diſeaſe is very uncertain: ſome have died very ſuddenly, others have become mad with extremity of torture, whilſt ſeveral cattle have protracted life to the fourth, ſixth or ſeventh, very few to the eleventh day.

I ſhall now give the appearance of the dead body of an infected brute, in as few words as perſpicuity will admit, not from my own inſpection, having never had the opportunity of doing what my curioſity would have excited me to, but the account is extracted from a very diffuſive one of a gentleman, whoſe veracity and anatomical judgment are both unexceptionable.

Upon opening the brain, its ſeveral membranes appeared looſer, and of a texture more incompact than uſual, and their colour remarkably pallid, with livid ſpots interſperſed; its ſubſtance was moiſtened with a bloody tinged ſerum,

which,

which, from the general emptineſs of all the blood-veſſels, we may properly conclude was extravaſated; the whole maſs appeared in a ſtate of putrefaction, or, was evidently making ſwift approaches towards it; which might be judged, not only from its aſpect, but the intolerably-offenſive ſtench that it emitted.

This diſagreeable odour attended the whole diſſection, more particularly that of the viſcera, whoſe integuments were diſcoloured in a very irregular manner; this was likewiſe obſervable in all the membranes that inveſt them, which in ſome places were pale and exſanguious, in others livid or mortified, whilſt others were red and evidently inflamed.

Extravaſations were very frequent throughout the whole carcaſs, the blood was very black, and of a broken and incompact texture, conſiſtent in appearance, yet ſoluble upon the leaſt touch.

The lungs were found very deformed, and unequally advancing to mortification, the trachæa was lined with a frothy mucus, beſides, vaſcular corroſions were diſperſed irregularly throughout.

The liver, ſpleen, and kidneys, were all unſound, both in their exterior and interior ſtructure; the gall bladder was inflamed, and upon the full ſtretch, though it reſiſted a diſcharge, and its bile was of a colour more ſplendent, and of a conſiſtence more fluid than cuſtomary. The urinary bladder had the ſame inflammatory and excoriated appearance, with a remarkable paucity of contents.

I have

I have been informed, that in ſome diſſections which have been made in this county, that large ſwellings were obſerved in different external parts of the body, but generally in a gangrenous and mortifying condition.

We may collect from *Ramazzini*'s account of the phænomena upon anatomical diſquiſition, a great coincidence in teſtimony, though his relation appears no very particular one.

From the hiſtory of the diſeaſe itſelf, and from the above account of appearances upon diſſection, it is pretty evident, that there is a ſtrong diſpoſition in all the juices of the body to putrefaction; and that this putrefaction is of a peſtilential nature, is likewiſe evident from the extreme contagion that attends it.

Moreover, we may venture to infer, from the tendency of the diſeaſe to certain exterior glands, particularly thoſe about the fauces and parts contiguous, that nature exerts herſelf to unload the peccant matter there; in which attempts ſhe is generally fruſtrated from the gangrenous acrimony of the juices, which corroding the parts it is thrown upon, produces a ſanious mortification inſtead of a laudably maturated impoſthume.

Further, from the tumours which are ſometimes conſpicuous in the ſkins of the younger recovering cattle, the ſenſibly increaſing laxity of the external teguments, and the attendant depilation, it becomes demonſtrable to me, that the conſtitution has had a ſalutary relief that way.— *Firſt*, As the ſkins of the younger cattle muſt be proportionally looſer than thoſe of the

the more aged, they will neceſſarily give leſs reſiſtance to a critical diſcharge. *Secondly*, The looſneſs of the hide, which increaſes every hour after the turn of the diſtemper, evidences the return of that proper moiſture, and bland fluidity of the juices, which preſerves the parts pliable and yielding; as, the remarkable loſs of hair, not only ſhews the increaſe of the perſpiration, but a degree of acrimony with which its firſt advances are accompanied; moreover, the general deficiency of theſe phænomena in the older cattle muſt ariſe from a more reſiſtable tenſity in the external parts.

Therefore, if nature could be ſo far aſſiſted as to invigorate her own efforts; if the putrid acrimony of the juices was by ſome proper means ſo ſheathed and blunted, as to flow with leſs ſtimulus through the ſeveral veſſels of the body, till the diſcharge becomes local and glandular; if the ſurface of the body, and the more externally ſituated glands could be preſerved moiſt, flexible and yielding: if, moreover, ſome ample drain could be provided in a proper part, ſo as to become conſiderable and habitual before the leaſt approach of the fever; if we are ſo fortunate in our endeavours as to bring about theſe effects, I am apt to conclude, the event would in a general way prove proſperous, either, by ſome glandular impoſthume, analogous to the peſtilential bubo, or a well ſuppurated parotis in the human body; or, by a diſcharge of the peccant virus through the artificial drains that have been previouſly prepared, or by puſtulary eruptions upon particular parts; by all theſe methods con-

concomitantly, or by fewer, as the offending matter has been more or leſs copious or malignant.

Of the methods moſt likely to anſwer theſe ſeveral curative indications, I ſhall ſpeak hereafter. This place I have reſerved, as no improper one, to communicate my private ſentiments upon iſſues or ſetons, with ſome previous introductory reflections, and the peculiar ends they will moſt probably anſwer in times of ſuch public calamity, or even greater than the preſent; it being a practice, on which, as is apparent to every reader, I have the greateſt dependance, and no man can act with any ſatisfactory propriety, either with reſpect to himſelf or others, but from judicial, or what appear to his apprehenſion, rational motives. This therefore I ſhall attempt with what perſpicuity I am capable of.

The animal body, both human and brute, may be properly conſidered as a moſt perfect hydraulic machine, or an aſſemblage of ſolids and fluids, ſo admirably contrived by the divine Former, as to preſerve a certain equipoize with each other, in which undeviating balance of action, the health of the individual moſt perfectly conſiſts; on the contrary, every receſſion from this appointed ſtandard, or an overplus of action on either ſide, from whatſoever cauſes, is unavoidably attended with a loſs of that perfect ſtate, in which, the pleaſure of its being principally depends.

In hydraulic machines, which are the product of human art, though compoſed if poſſible

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of an infinite ſeries of canals of different capacities, from the largeſt tube to the ſmalleſt capillary, having a communication with each other, and equally pervaſible by a common fluid, this obſervation will be found to take place. If in any of theſe diverging canals, at how great a diſtance ſoever from the common trunk, a weakneſs prevails, ſo that the contained fluids can poſſibly overcome the reſiſtance, the whole current of liquors will be determined to this place, and the weaken'd part will give way, ſooner or later, according to the degree of impelling force and coheſion of the parts of the canal. Or, ſuppoſing the machine to be perfectly ſound, and proportionally uniform throughout its whole ſtructure; if any external agent is ſo applied, as to deſtroy or wound one or more of its canals, the whole bent of liquors, from their perpendicular altitude above the wounded part, will be determined hither till the bulk has run out, and the greateſt current will be where there is the leaſt reſiſtance.

Theſe effects depend on certain phyſical principles, eſtabliſhed by the almighty Creator at the beginning of the world, upon which alone they are explicable; and as the animal body, in the compoſition of its matter, appears to be univerſally the ſame with that of all other bodies, ſo, what may with propriety be affirmed true of all other bodies, may likewiſe, with equal juſtneſs, be aſſerted ſo in our own; and ſo far, as there obtains a conformity of ſtructure and mechaniſm betwixt the animate and inanimate, there will reciprocally obtain a parity of appear-

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ances and effects: hence, the above phænomena obſervable in hydraulic machines take a proportional place in the animal. One inſtance of which we have in hydropic tumours of the depending parts, in relaxed and depraved habits; a ſecond, in the diſcharge of liquids, from any wounded part of the body, ſo long, whilſt the reſiſtance of the containing canal is overcome by that of the impelling fluid. Nevertheleſs, in the animated body, that amazing product of ſupreme wiſdom, there are properties and affections obſervable, which no human ſagacity can ever imitate, and where no analogy from inanimated ſyſtems will ever obtain.

Such is the reciprocal connection betwixt body and ſpirit, and ſo mutual the conſent and harmony of their particular powers, that determinate actions in the one, are always neceſſarily attended by correſponding affections in the other: but the manner in which two beings, ſo eſſentially different in their powers and attributes, ſhould yet ſo reciprocally act upon each other, is altogether inexplicable from any conſideration of their natures ſeparate. All the poſſible ſatisfaction we can ever attain to, lodges in an accurate obſervation of their mutual and individual effects.

Obſervation then teaches, that in the animated body there is a law, whereby it has a conſtant repugnance to every thing that offends it, and which impels it to unite the ſeveral powers it is poſſeſſed of, to throw off the incumbrance.

That this ſalutary end may be moſt effectually anſwered, nature employs many and various means,

means, according to the degree of urgency of the ſtimulating cauſes, and the integrity of her own faculties.

An aſſiduous vigilance to guard the interior and more noble parts of the body, upon the immunity of which life principally depends, by attempts through the many avenues which lie nearer or upon the ſurface, is not only very obſervable in fevers of every ſpecies, but in moſt of the chronical diſeaſes; which laſt, as their progreſs through the habit is not ſo quick and menacing, ſo the iſſue is not ſo ſudden and determinate, yet, to the eye of an obſervant phyſician, eventually as critical and conſpicuous.

What are numberleſs conſtitutional habitudes, but ſo many ſalutary means of excretion, which nature makes uſe of to relieve herſelf from under the oppreſſion of ſome ſpecies of peccant matter? But their effects upon the body plainly evidence them to be ſuch: and as a proper knowledge of the nature and tendency of ſuch diſcharges, is not only a very intereſting point gained to the practitioner, but as it will be a proof of the validity of ſome future arguments I have to advance, an enquiry into ſuch habitudes, as I have termed conſtitutional, will be no improper endeavour, as far as it is founded upon obſervation and facts.

Of theſe habitual criſes, ſome are remarked to be ſtated, and regularly periodical, whilſt others, on the contrary, are vague and uncertain; yet both kinds correſponding in this, that after their effects have ceaſed, the conſtitution becomes for a ſeaſon purified, and continues apparently healthy,

healthy, till a new collection of the ſame offending matter neceſſarily calls for a renewed acceſſion of the paroxyſm. Beſides, there is another ſpecies diſtinguiſhable from the former in having no interval of ceſſation, neither any period of return, but are conſtantly acting as ſo many open ſluices, through which every ſordid eluvies, that is daily collecting in and contaminating the habit, is critically diſcharged.

Beſides the menſtrual effluxion from the uterus in women, we not infrequently obſerve periodical hæmorrhages from various parts of the body in both ſexes indifferently, with effects upon the conſtitution every way equivalent; and as moſt or all of theſe may ariſe from a mere redundancy of juices, whoſe overplus is thrown out by ſome of the leaſt reſiſting outlets, they may be looked upon as the ſimpleſt of all the ſtated ſalutary excretions, ſuch are the hæmorrhoidal flux, periodical diſcharges of blood from the noſe, the caruncles of the eyes, the meatus auditorius, the penis, and even from the extremities of the fingers *. Two remarkable inſtances of which came under my own cognizance, the one appeared in a woman, who every month

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* We have various inſtances of theſe menſtrual evacuations in practical writers. A periodical hæmorrhage from the thumb, in *Philoſoph. Tranſact.* From the little finger, in *Salmuthus*, Cent. 3. Obſ. 36. *Henr. ab Heer.* Obſ. 36. From the penis, we have many in *Stalpartius van der Wiel*, Cent. 1. Obſ. 80. From the breaſts, in *Panarollus*, Pentec. 4 Obſ. 15. *Amatus*, Cent. 2. Obſ. 24. and Cent. 7. Curat. 48. From the knee and hand, in *Bartholinus*, Obſerv. Anat. Cent. 1. Hiſtor. 30.

had a regular excretion this way, which ſenſibly compenſated for the abſence of the natural menſtrual one by the veſſels of the uterus. The other I obſerved in a young gentleman of an effeminate complexion and very delicate habit, who had a ſtated diſcharge of blood from the extremities of the little fingers, which became ſo neceſſary to the preſervation of his health, that the interruption of it from any cauſe, which once or twice happened, was quickly attended with feveriſh and other uneaſy ſymptoms, a ſtrong evidence of its critical and ſalutary tendency. It is moreover to be remarked, that theſe ſpecies of hæmorrhages generally appear in perſons of a tender frame and moiſt habits, whoſe conſtitutions naturally incline them to plethoric collections, and whoſe fibres are of ſo looſe and incompact a texture, as eaſily to yield to any overbearing impulſe of the blood; and theſe evacuations continue till that due equipoize of action betwixt the ſolids and fluids is reſtored.

Moreover, ſtationary diſcharges are not infrequent through the ſeveral ports of natural ſecretion: there are ſome people whoſe conſtitutions peculiarly refine themſelves by periodical diarrhœas; in others, the urinary, ſalivary and perſpiratory ſecretions become more copious at ſtated ſeaſons; whilſt there are ſome habits in which the humours are defecated by mucous defluxions upon the aſpera arteria or ſchneiderian membrane; in many very healthful people, coryzæ become habitual and ſtated; others are ſubjected to phlegmatic catarrhs, or purulent excretions from the noſtrils, which ſeveral ſpecies of

of diſcharges become ſo neceſſary and healthful to particular habits, as very ſenſibly to preſerve them from diſeaſes that would otherwiſe have been unavoidable; and the moſt certain ſigns of their ſalutary effects are, that the body is ſenſible of no weakneſs or laſſitude after them, but on the contrary, is relieved from all that oppreſſion which more or leſs preceded the criſis, the faculties become remarkably clear, and the whole body renewedly vigorous and active. *

The various ſpecies of chronical ulcers may be looked upon as ſo many habitual epicraſes or emunctories for critical excretion, with this only difference from the former claſſes, that the avenues are perpetually open, without any ſenſible periodical increaſe or diminution of their diſcharges; and in theſe caſes, the body evidently demands ſuch a perpetuity of the evacuation,

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* From ſuch obſervations as theſe, *Sanctorius* muſt have drawn the two following aphoriſms:

" Corpora virorum ſano & moderatiſſimo victu utentia ſingulis menſibus fiunt ſolito ponderoſiora, unius ſcilicet duarumve librarum pondere, & redeunt ad conſuetum pondus circa finem menſis, ad inſtar mulierum, ſed facta criſi per urinam paulò copoſiorem vel turbidiorem." Sect. 1. Aph. 65.

" Ante dictam criſim menſtrualem a ſomno factam, vel gravitas capitis, vel corporis laſſitudo præſentitur, & deinde paulo copioſiori urina evacuata omnia ſedantur." Sect. 1. Aph. 66.

In the hiſtories of diſeaſes, we frequently meet with a variety of ſuch facts; and I imagine there are very few, who are even but indifferently converſant with phyſical practice, but muſt ſome time or other have met with caſes ſimilar.

being loaded with a kind of conſtitutional fomes, which is ever generating in, and infecting the habit, and conſequently ought to be diſlodged with a proportional celerity, that the health of the individual may be preſerved.

Of this kind, are ſcorbutic, ſchrophulous, leprous, venereal and cancerous ſores, whatever be that part of the body they happen to infeſt, and they ſo very evidently ſerve the ſalutary intentions I have before mentioned, as that, the retropulſion of their diſcharges, is too often attended with fatal conſequences: and amongſt judicious and experienced phyſicians, an abolition of theſe ulcers, without a previous emendation of the habit, either by the means of art, or by a defect in the powers of nature, is, on the one hand, accounted an unſalutary and raſh practice, and on the other, is always eſteemed a fatal preſage, or at leaſt an omen, of very bad tendency.

Authors abound with obſervations of this kind, and admonitions to the practitioner, with what caution and deliberation he ought to proceed in the exerciſe of his art. Amongſt numberleſs inſtances which might be produced upon this head, I ſhall deliver the ſentiments of two writers, whoſe authority is allowably reputable.

Ulcera cujuſcunque generis in ſubjectis impuris minime cito debent exſiccari: his enim ſæpe ſanitati ſunt, & non ſecus ac fonticuli corpus a mille aliis malis immune præſtant. Si quis vero temerario auſu conſolidationem inſtituit, morbos ſæpe pejores coſque inſanabiles accerſit; unde ego poſt

talia

talia ulcera intempeſtive occluſa pleuritidem, aſthma, cæcitatem, vertiginem, mentis alienationem, aliaque plura mala vidi ſubnata.

Fred. Hoffman, *Tom. III. cap.* 6. *p.* 453.

We have the opinion of *Severinus* in theſe words:

Singulare genus eſt eorum ulcerum, quæ conſilio naturæ providentis parantur, quæ quoniam in noſtram ſalutem excitata ſunt, facinus eſſet ipſa aut amoliri, aut temerè cohibere.

De Noviſſ. obſerv. Abſciſſ. *cap.* 30.

Conſequences equally pernicious, are not only obſerved to attend the ſuppreſſion of old ulcerous diſcharges, but alſo, of any other habitual or periodical evacuations, whether ariſing from a contaminated, or, ſimply, a plethoric exuberance: and theſe evils ought to bear a conſiderable ſhare in the regard of every phyſician, as they are daily obvious to him, and become the objects of the greateſt and moſt intereſting part of his practice.

What fatal effects are not every day remarkable from the mere retention or repulſion of the arthritic fomes, the menſtrual or hæmorrhoidal diſcharges, conſtitutional fluxes of every ſpecies, cutaneous eruptions or defedations of every claſs, the repreſſion of tumours under every appellation; in ſhort, ſo numerous and various are the diſeaſes that take their beginning from the ill-judged efforts of art in extinguiſhing theſe excrementitious diſcharges, or the deficiency of

nature in promoting their expulſion, that to recount them, would be almoſt to run through the whole melancholy catalogue of diſtempers, which the race of *Adam* is unhappily ſubjected to.

Here I cannot omit introducing a remark, that has often occurred to me, and appears of very momentous import to every deliberate and humane practitioner, whoſe actions flow from purer motives than thoſe of lucre or applauſe, and whoſe wiſhes benevolently terminate where they ought; yet, it is what I have never obſerved to be recommended, in the courſe of my ſmall reading, by any author, nor in the intercourſe I have enjoyed with my friends of the faculty.

The obſervation is pretty common, that thoſe people, who are of tender fluxile habits, and of an irritabile genus nervoſum, are generally preſerved in ſafety from common or epidemic fevers, whilſt others, of athletic conſtitutions, and abounding with health and vigour, very rarely eſcape the utmoſt ſeverity of the diſeaſe, and that with the moſt imminent danger of life. The reaſons of ſo eſtabliſhed a fact, the reflections conſequential from it, and the inferences that ought to be drawn in practice, are obvious to my apprehenſion, as doubtleſs they have before appeared to many others.

The cauſes of fevers, being generally an obſtructed perſpiration, or ſome ſpecies of irritating miaſmata, imbibed by the maſs of juices, become on the one hand peccant, from a redundancy of what ought in the courſe of health to be thrown off; on the other hand, deleterious, from ſome ſtimulus of its own peculiar nature;

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conſequently, whilſt theſe remain in the habit, the diſeaſe muſt neceſſarily exiſt, and the event will be according to the tenor of the body that lodges it. If there happen any inequality in the conſtitutional oeconomy, if the ſtomach and inteſtines be of a looſe and tender ſtructure, and the nervous ſyſtem univerſally ſenſible, and ſuſceptible of impreſſions from the ſlighteſt cauſes, the febrile redundancy of juices, from repreſſed perſpiration, will naturally, and from hydraulic laws, reſort to the weakeſt and moſt yielding parts; and ſo, from the increaſe of another evacuation, or a ſupervening diarrhœa, the balance of the ſecretions will be again reſtored. Likewiſe in epidemic fevers, the offending virus, whatſoever may be the peculiarity of its ſtimulus, will produce the moſt ſenſible effects upon the laxeſt and moſt irritable parts of the body, and eventually be diſlodged by a ſalutary flux.

This is circumſtantially the caſe, of tender, valetudinary and nervous people, the tone of whoſe viſcera is generally weak, their actions languid, and the nerves, which are diſtributed upon their ſeveral coats, ſo very irritable, as readily to diſcharge their contents upon the ſlighteſt ſtimulus; conſequently, the immunity of ſuch from the abovementioned diſeaſes will be more remarkably obſervable.

Whilſt the ſame cauſes, meeting with oppoſite conſtitutions, will have contrary and directly oppoſite effects: in theſe people, we find no complaints of weakneſs in this or that bowel, no remarkable ſenſibility of the genus nervoſum, but

the integrity of all the organs is ſuch, and the whole body is of ſo compact and uniform a tenor, as to give way very ſlowly, if at all, to any increaſed impulſe from the blood, neither are the nervous filaments affected without ſome very violent ſtimulus. Hence it is, that in theſe habits, we very rarely obſerve a critical ſolution of the diſeaſe by means of an early diarrhœa; but, on the contrary, if no hæmorrhages appear, or large inflammatory tumours upon the external parts, the patient muſt expect his relief from the vigour of his own powers, and wait till the morbific matter becomes, by repeated circulations, ſo duly concocted and fluxile, as to flow through ſome of the ports of ſecretion, either in form of a plentiful ſweat, or by a copious diſcharge of turbid urine, or both concomitantly, ſeldom by a diarrhœa, ſometimes by a critical abſceſs; and if ſuch patients eſcape, they may be ſaid to do it, from the fury of the flames. So true it is, that *Nemo ab omni parte beatus*; No terreſtrial happineſs without its alloy; no enjoyment perfectly and permanently ſo.

I myſelf labour under a great debility of the ſtomach and bowels, and ſome other of the ſymptoms of that afflicting train, which are its general attendants; yet I have reaſon to thank divine providence, that this, which is a preſent evil to me, has moſt evidently preſerved me from more threatening and fatal ones, having oftentimes been ſubjected to fevers, from colds and obſtructed perſpiration; yet I have been generally ſenſible hereupon, of a reſort of the offending cauſes to the weakeſt part, and my preſervation has

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over and over depended upon a diarrhœa, which it is my care only to watch and moderate; and I make no doubt at all, but this is the caſe and experience of thouſands.

How neceſſary then will it appear, for every practitioner, who has upon him ſo important a charge, as the health of his fellow creatures, to examine deliberately, before his reſolves become concluſive, into every minute circumſtance of the patient's habit and life; what were his remarkable complaints whilſt in the enjoyment of a tolerable degree of health, whether he was ſenſible of any particular part being weaker and more readily affected than the reſt, or was he ſubject to thoſe multiform ſymptoms of a too nervous irritability; if this has been the caſe, depend upon it, the bent of nature will certainly be thitherwards, and her exertions to relieve herſelf conſpicuouſly there: which it is the buſineſs of the phyſician to inſpect, aſſiſt and mitigate. But to return:

We ſee very evidently, how nature alone is the grand actor and vigilant defender of the body; but as her powers are too often defective and inadequate to thoſe of the diſeaſe, ſhe has repeated occaſion to call out for the aſſiſtance of art; and it were ardently to be wiſhed, that her genuine voice was more attentively ſtudied, more accurately diſtinguiſhed, and more faithfully obeyed. For, as it is with the experienced an acknowledged maxim, that the laws of medicine ought to be exactly conformable to the laws of nature, ſo, has it been found as infallible a truth, that thoſe attempts are moſt ſucceſsful, and that cure

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moſt perfect and ſtable, which ſhe has pointed out and joined in; as, on the contrary, both have proved fallacious and inſecure, where ſhe has not led the way, and promoted with her alliance.

From the firſt probable riſe, and evident effects of iſſues and ſetons, they may, with very ſtrict propriety, be called exact imitations of ſome of nature's chief and peculiar methods of alleviating or eradicating diſeaſes; and for many obvious reaſons, the artiſt has it in his power to make them ſerve the nobleſt and moſt ſalutary purpoſes, even antecedent, in many reſpects, to the ſpontaneous exulcerated drains of impure habits; for, by means of a judicious, early application of them, we have it in our power to preſerve the body in a degree of immunity from diſeaſe, or at leaſt, of diſlodging its cauſe, before it diſtributes its taint through the whole habit; further, we have very frequently the choice of healthy ſubjects, and bland juices to act upon, and every practitioner is very ſenſible, that it is from euchymous fluids alone, we can reaſonably expect a laudable or well concocted purulence. Whereas, chronical ulcers are become the pure effects of acrimonious and depraved jucies; the diſeaſe has previouſly taken deep root in, and laid waſte the conſtitution, and the powers and faculties of nature have generally been too far exhauſted, to effect any other than a palliative relief.

In order that iſſues may anſwer the moſt excellent ends, let us a little conſider the requiſites thereto, and the manner in which they obſervably operate.

Firſt, As they are artificial wounds made upon

on what part of the body the artiſt pleaſes, an inflammation, as is uſual, attends, and a well digeſted ſuppuration generally ſucceeds.

Secondly, Every ſuppuration implies a degree of vigour in the blood's motion, as the tenor and aſpect of the matter diſcharged, affords the moſt certain criterion of its tempers and qualities.

Thirdly, That the digeſtion of wounds may be laudably performed, there is not only required a ſanity in all the juices, but a certain medium in the circulation; for, as in exceſſes on any hand, no excretion whatever can be regularly given of, ſo, from extremes of rapidity, or languor in the flow of the blood, can no purulent diſcharge be properly concocted and expelled. For inſtance; in very acute fevers, wherein the body is almoſt burnt up with intenſeneſs of motion and heat, no puſtulary eruption of whatſoever ſpecies can be diſtinctly ſeparated, and from the ſame exceſs, old ulcers will gangrene or conglutinate; ſo, on the other hand, in dropſical and pituitous habits, where the current of the humours is extremely torpid, and the circulation pauſes in its channels, no impoſthume can poſſibly maturate, or wounds heal commendably. Hence, phyſicians have always looked upon it as a token of ſafety to the patient, and an argument that the powers of nature are ſuperior to thoſe of the diſeaſe, if ſpontaneous or artificial ulcers appear duly inflamed, moiſt, and diſcharge well; as, on the contrary, it is a preſage of very bad import, when they become of a livid aſpect, and their excretions intirely ceaſe, or become ichorous.

Fourthly, As the mind acquires ſtrong propenſities

ſities by repeated exertions, and even an irreſiſtible affection to what, formerly, it had an abſolute repugnance; ſo, the body gains habitudes by frequent acts, and cuſtoms ſo permanently rooted and fixed, as to become even neceſſary to the life of the individual, and by no means to be broke, without doing a fatal violence to the conſtitution.

This truth is no where more ſatisfactorily apparent, than in the circumſtances attending iſſues and ſetons. Although nature had no propenſity, in the beginning, to throw off any humours thro' theſe outlets, yet by frequent ſolicitations the channel becomes perfectly habitual, and the regularity of its diſcharges the means of her ſafety and relief: a certain indication that this is the caſe, appears from the various fatal and afflicting ſymptoms that ſucceed an imprudent conſolidating of iſſues or ſetons, and a return of that individual diſeaſe, whoſe violence was mitigated by the conſtancy of the evacuation; injuries of this kind are ſo recent, and frequently occurring, that to induce a multiplicity of evidences from the more ancient writers were unneceſſary; I only appeal to the daily experience of every practical phyſician for the unhappy truth.

Fifthly, As the ſeveral fluids of the body form their courſes according to hydraulic principles, we have it in our power, by weakning a particular part, to derive a greater flow of them thither, and by the conſtant application of ſome ſtimulus, to render the revulſion gradually habitual and even neceſſary to the deſigns of nature. Beſides, ſuppuration proceeds from the blood itſelf, and is

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an act of the ſanguinary or firſt order of veſſels, and no tumour is ever critical, or can be properly digeſted ſo long as it is ſeated in any lower claſs, till by repeated impulſes of the blood *a tergo*, the obſtructing cauſes become ſo far attenuated as to ſuffer an eaſy reflux into the circulation, which may afterwards be diſcharged its boundaries by ſome manner more ſalutary and determinate. Which reaſons induce me to conclude, that iſſues, or artificial wounds, affecting the blood veſſels principally, muſt at leaſt greatly aſſiſt in draining from that fluid every morbific ſeminium with a degree of celerity proportional to its entrance; the red blood being a collected maſs, in which are included all the other various principles which form the numerous ſecretions of the body.

Further, theſe kinds of outlets have another ſenſible advantage, in being gradually operative upon the habit, the ſtrength of the conſtitution is not impaired by the quantity of excretion; whereas the other critical diſcharges are apt to overact their cauſes; and, being generally precipitate, are too frequently attended with a loſs of ſtrength, and a proſtration of the ſeveral powers and faculties.

From ſuch conſiderations as theſe, a clearer light is thrown upon the ſubject, which will direct us to diſtinguiſh indications for the uſe of iſſues, with ſome degree of certainty and ſatisfaction, and how to reap every poſſible benefit from their application.

We may reaſonably infer, that whenever the juices become tainted with any deleterious acri-

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mony from whatſoever fountain, and loſe that blandneſs and equality of temperament, which is their character in a ſtate of health; if iſſues can be managed ſo ſucceſsfully as to make free and regular diſcharges, the indications for them become concluſive.

There are very few chronical diſorders, under their ſeveral names and diſtinctions, wherein every day's experience don't evince to us their certain good effects; and in acute caſes, I make no doubt at all, but the patient would reap as conſiderable emolument, were they apply'd whilſt he is in the enjoyment of health and vigour, ſo as to become a kind of natural or conſtitutional habitude.

In common fevers they will probably prove of the leaſt ſervice for obvious reaſons. Their attacks being generally upon the robuſt and ſanguine, and very frequently precipitate, and their cauſes for the moſt part obſtructed or repreſſed ſecretions, the quantity of juices becomes too exuberant, to admit a criſis by ſo gentle a diſcharge as that of an iſſue; ſuch cauſes calling for more copious evacuations, and the patient has been generally too ſecure of preſent happineſs to make uſe of precautions againſt unlooked for evils.

Whilſt epidemic fevers, owing their cauſes to miaſmata of differing peculiarities, which float in the air as their common receptacle, and being imbibed by the habit become noxious by their qualities rather than quantity. They are characterized under various appellations, according to the ſymptoms that attend each, but all indicate a degree of ſtimulus of ſome ſpecies, as their im-

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mediate cauſes, which, though ſo extremely ſubtil as to eſcape all poſſible conception, yet has the ſurprizing faculty of converting the whole maſs of juices into a latex of the ſame deleterious nature with itſelf. This, the conſtitution has a remarkable propenſity to diſlodge upon the external parts of the body, under ſome form or other, which, if ſucceſsful, generally appears in that of well maturated impoſthumes. It being very rare that we obſerve diarrhœas, renal diſcharges, or even ſweats in theſe fevers, that are of themſelves determinately critical.

The quantity of matter which effects the ſolution of the diſeaſe is oftentimes very inconſiderable, even in ſome of the moſt violent and fatal ones. A ſingle well-digeſted bubo alone, has relieved the patient from the moſt terrible and threatening ſymptoms of the plague; of which many inſtances are to be found in *Diemerbroeck*, and other practical writers upon the ſubject; a certain evidence, not only, of the exceeding tenuity of the contagious fomes, but likewiſe, of the extreme virulence of its powers.

Therefore in fevers of this kind, which circulate by means of a contagious atmoſphere, we have all the reaſon in the world, to hope for the moſt ſalutary effects from iſſues and ſetons, opportunely applied; which, innumerable facts, from the united teſtimonies of various authors, render perfectly concluſive. Many of theſe facts, the reader will recollect to have been quoted in the foregoing parts of this Eſſay; but it is to be remembered, that from a well-timed application alone,

alone, we are reaſonably to depend upon future benefits.

Excepting a very few epidemics, which affect the body but once during life, no man can or ought to eſteem himſelf free from the common danger, who breathes the ſame impure æther. Their invaſions upon the habit are inſidious, and we are all alike expoſed to them, in ſome degree or other, according to our various diſpoſitions to receive.

But, notwithſtanding the paths of contagion be in the dark, yet the marks of its preſence are certainly diſtinguiſhable, and its progreſs ever ſuſpicious; a few unhappy ſufferers ſpread the alarm, and become a warning to the living to expect a portion of the ſame calamity, or arm againſt its aſſaults.

Prevention from diſeaſe is the proper labour of the healthy, and the reward of the vigilant; whilſt the body enjoys a ſtate of immunity, proper preparatory means are adviſable againſt the mildeſt epidemics. And if iſſues have proved beneficial in diſeaſes of the moſt imminent virulence, which is a truth beyond all controverſy, they certainly will be no leſs advantageous in thoſe of a more lenient tendency, agreeable to the opinion and remarks of *Hoffman*:

Nos vero non tantum in peſtilentia ſed & in aliis malignis graſſantibus & contagio infeſtis morbis ſummo cum fructu fonticulos geſtari obſervavimus, idque remedii genus maximopere commendamus. Nam quod majus poteſt, id quoque minus præſtari poſſe rationi valde conſentaneum.

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The good effects of an open drain are no where more ſenſibly evident, than in the ſmall-pox from inoculation, wherein, the inciſion, through which the variolous venom was communicated, by making free diſcharges ought to be looked upon as an aſſiſting criſis, and in a great meaſure preventive of the ſecondary fever, which it is allowed more rarely attends the ſmall-pox from inoculation, than when taken in the natural way: Dr *Frewin* obſerves, in a late judicious pamphlet upon this practice of imparting the diſeaſe, that when the eſchars upon inciſion had been duly ſeparated, and the diſcharges from it pretty equal and conſtant, no contingent, or remarkably feveriſh ſymptoms whatſoever, became troubleſome to his patient. For nature, by means of a continual drain, is greatly aided in her attempts, to throw off the matter of the diſeaſe; which has an eaſy receſs through the very channel, by which its taint was at firſt introduced. And the perſpicuity of this theory is ſufficiently manifeſted, by the inciſions not being diſpoſed to heal up, till ſuch time as the diſeaſe itſelf is totally extinguiſhed.

Whereas an attempt to procure a diſcharge by opening an iſſue, after the ſeizure or more advanced ſtages of the diſtemper, would be vain and precarious; the blood being generally hurried round with too great impetuoſity, for bringing about the proper and genuine effects of a more gentle current.

But peſtilential diſeaſes, in a more eſpecial manner, call for the timely application of iſſues, in proportion to the exceſs and danger with which they

are accompanied, above the other epidemics. To this purpoſe, *Glandorpius* expreſſes his opinion with remarkable propriety. *Quouſque ad tempus attinet, nequaquam tamdiu illorum differenda eſt applicatio, quouſque peſtis incrementa ſua & vires acceperit. Tunc enim chirurgo magnopere timendum eſſet, ne ulcus malignitatem quandam & inflammationem conciperet, quod plerumque verum eſſe, percelebres multi doctique medici atteſtantur. Melius ergo conſultum fuerit ſub ortum peſtis jam graſſantis, & pernicioſos admodum ſuos fructus germinantis, eadem applicare.* *

Delays here are dangerous to the laſt degree, the fatality attending the plague being oftentimes no leſs precipitate, than its aſſaults are ſurreptitious; as *Diemerbroeck* obſerves to have ſometimes happened under his own eye, in the plague at *Nimeguen*. † *Valleriola* relates incidents of the like kind, whilſt the ſame diſeaſe raged at *Narbonne*, in the year 1534; and at *Bruſſels*, during the plague there, many were ſeized amidſt the rounds of jocularity and diſſipation, and died, as if thunderſtruck, betwixt the cup and the lip. ‡

Againſt

* De fonticulis & ſetaceis.

† Tantæ violentiæ ſæpe eſt peſtilens venenum, ut nonnullos ſtatim ipſo invaſionis momento, repentè occidat, aliis intra breve tempus filum citius abrumpat, quàm inflammationi aut putredeni tempus detur. Hujus rei etiam aliqua exempla in peſte noviomagenſi vidimus.

De Peſte, Lib. I. cap. 12. *Annot.*

‡ Anno 1502 Bruxellis tam crudelis ſæviit peſtis, qua ſæpe quingenti una die ſublati fuere, & homines læto convivio aſſidentes intra calicem ſupremaque labra tanquam percuſſi fulgure, protinus expirarunt.

Follinus de Amul. c. 16.

Againſt ſuch dreadful ſtrokes, no human foreſight or precaution may probably prove of any avail; but happily, theſe inſtances are not frequent, and in lieu of rendering us ſupinely inactive, they ought to incite us to the practice of every poſſible means, which reaſon and experience point out to us as efficacious in analogous circumſtances.

The derivative powers of iſſues will yet appear more diſtinct and conſpicuous upon the credit of the following caſes.

We have an anſwer of *Gregorius Horſtius* to his friend and collegue, *Antonius Boxbarterus*, who had wrote with ſome degree of ſurprize, how iſſues came to be ſo much neglected in practice, or even in the recommendations of phyſicians, particularly in contagious ſeaſons, ſeeing inſtances of their ſurprizing efficacy in theſe diſeaſes, when accidentally applied, and for very different purpoſes than thoſe of prevention, had been ſo very common and recent, and the arguments for the uſe of them, both from reaſon and analogy, ſo undeniably urgent and convincing.

To this *Horſtius* makes his reply, by ſtrictly coinciding with the ſentiments of his friend, and enforcing their validity, by ſome memorable facts, which had fallen under his own immediate cognizance.

He teſtifies, that during the plague at *Ulm*, ſeveral, before they could even complain of any very preſſing diſorder, were ſeized with extremely acute pains about the parts where they carried iſſues, which became more and more local,

till the aſpect of the ulcers appearing livid or black, with yet more afflicting pungency, the ſymptoms all went off upon a diſcharge, at the firſt, of ſanious matter through the open iſſue, approaching gradually to a well-digeſted purulence. Many were thus preſerved, after the fever and other peſtilential ſymptoms had diſcovered themſelves; whilſt ſeveral eſcaped by a freſh eruption of old ulcers recently cicatrized. *

Diemerbroeck, reciting the caſe of a patient, who was indebted for his preſervation, to an iſſue he had in his left leg, tells us, that, having perceived all the firſt ſymptoms of the plague, he took a gentle alexipharmic draught, which, ſweating him through moſt part of the night, his complaints all vaniſhed; but on the following day, to give his own words, *De magno fonticuli cruris dolore conqueſtus eſt, è quo vidi ichorem quendam nigricantem effluxiſſe, ipſumque fonticulum in circumferentia nigricantem colorem contraxiſſe: hujus fonticuli margine, a topicis convenientibus impoſitis, inſtar carbunculi, ſeperati fuerunt, & æger deinceps optime convaluit.* †

Theſe are the ſtrongeſt evidences, to my apprehenſion at leaſt, of a perfect ſeceſſion of the matter of the diſeaſe, from the reſt of the juices, and of a benign tendency in nature, to diſlodge it upon the weakeſt part, and by ways ſhe had been long accuſtomed to; and that this ſeparation is ſometimes ſurprizingly quick, appears from

* *Gregor. Horſtii Oper.* Tom. II. *de Morb. Malig. & Contag.*

† *De Peſte Hiſtor.* 110.

from preceding inſtances of ſeveral, who had the ſymptoms locally directed, with a ſenſible evacuation of the peſtilential venom through iſſues, even before the patient could be ſuſpected to have imbibed contagion.

Conſequently I muſt conclude, a prudent application of iſſues or ſetons, to be one of the moſt likely means, at leaſt, of averting thoſe ſudden and tremendous cataſtrophes, where the patient may be ſaid to exiſt in the full vigour of all his faculties, and ceaſe to be, almoſt in one and the ſame inſtant of time.

Having ſumm'd up, as above, ſuch arguments for the uſe of thoſe artificial diſcharges, as I conceive, have ſome degree of validity in themſelves, but are rendered yet more approvable and authoritative, by compatible teſtimonies from various writers of credit, I leave it to the diſcernment of the reader to make what remarks, and form what application he pleaſes.

Notwithſtanding iſſues alone may both prevent and cure, yet in ſo important, ſo national a concern as the mortality amongſt our horned cattle. I dare not look upon this precaution, as of itſelf ſufficient, eſpecially ſeeing obvious indications in the diſeaſe, point out to auxiliary means, which too, in all probability, are in our power.

Therefore before infection betrays itſelf,

It is highly adviſable, and even neceſſary, to keep the ſound cattle at a diſtance from the infected; and this ſeparation ought by no means to be delayed longer, than the very firſt appear-

ance of peſtilential ſymptoms upon any one of the herd.

A dry cough being the general prelude, this ought to alarm us, whether we ſuſpect it to ſpring from contagious or other cauſes: ſafety at leaſt lies in the caution.

And if the proprietor has many paſture grounds, it will be prudent to remove the apparently ſound into freſh incloſures, as remote as may be; beſides, the cribs and watering-places ought to be changed, where the infected have fed or drank at, for the ſubtil ſeeds of contagion have been imbibed, and intaminated the healthy under infinitudes of forms and diſguiſes.

As there is a certain mediocrity of condition, both with regard to bulk of body, and ſtrength of nerve, which is the ſecureſt ſtandard againſt diſeaſe, it will appear a point of great prudence, to reduce the too great luxuriancy of the younger and plethoric cattle, by proportional bleedings, and other proper means; the cribs of ſuch ought to be leſs plentifully ſtored, a part of their ſolid food gradually ſubtracted, and their waterings more frequent. And theſe cautions ought more particularly to be inſiſted on, if the mortality be very conſiderable or contiguous.

Ramazzini obſerves of the ſame diſtemper, prevailing in his country, that the robuſt and very fat cattle were not only moſt expoſed to its invaſions, but as rarely eſcaped its fatality; whilſt it in a general way left the leaneſt and backward of the herd untouched. *

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* Animadverſione dignum eſt, quod lues iſta boves robuſtos & valde obeſos facilius corripiat, macilentos vero, qui vix oſſibus hæreant, prætergrediatur.

The body ſhould be preſerved cool and open, not by the ſeverer purgatives, but by a few well choſen from the mildeſt and alterative claſs, repeated at diſcretionary intervals; ſuch are flowers of ſulphur, compounded with nitre; which may be exhibited in ſmall quantities, under the form of balls, or diluted with any convenient vehicles. We muſt likewiſe have an eye to all the other natural ſecretions, that they flow regularly and free. The perſpiration, principally, ought to be encouraged, by firſt waſhing the ſkin clean, and afterwards preſerving it from all kinds of filth and impurity. Its moiſture and flexibility may be promoted by a frequent uſe of the curry-comb and bruſh, and proportional cloathing, if the weather be very cold, or the cow-houſe be too much expoſed.

Further, due regard ought to be directed to the condition of their ſtables, that they be kept perfectly clean, or as much ſo as poſſible. It is a wrong practice, which prevails amongſt ſome of the country people, at leaſt it would be ſo in this caſe, to heap up large quantities of dung, to give a greater degree of warmth to their winter quarters; this ought to be daily removed at a diſtance. The houſes ſhould be frequently waſhed and ſwept, their bedding occaſionally changed; in ſhort, the very walls ought to be thoroughly cleanſed from every harbour of filth and naſtineſs; and a gentle current of pure air ſhould circulate through the whole lodgment.

Though there appears a great degree of ſuperſtition and ceremony, in the rites and ſacrifices made uſe of in cleanſing the leprous *Jew*, under

the *Levitical* law; yet the riſe of the inſtitution was certainly as reaſonable as the execution of it was ſtrict and punctual; the leper himſelf, his veſtments, and every thing he was poſſeſſed of, were not only to undergo a ſevere purification during a certain number of days, but the very houſe he inhabited was pronounced unclean by the prieſthood, from the appearance of that ſurprizing teſt of defædation upon the plaiſtered walls, which, with the old lime was ordered to be ſcraped clean, the walls ſpread afreſh with new mortar, and the duſt of leproſy to be ſcattered into a place ſet apart without the gates of the city. Yet ſo ſevere an exactneſs was no more than a neceſſary policy, made uſe of by the wiſeſt of legiſlators, to prevent the ſpreading of a diſeaſe, ſo loathſome in itſelf, and ſo peculiarly infectious to the tribes of *Iſrael*.

Amongſt other prophylactic means, no little will depend upon the choice of aliment, that the hay, ſtraw, or other ſpecies of fodder, be as perfectly ſweet, clean and ſound, as circumſtances will admit; among the reſt, it will be adviſable to give to each beaſt frequent maſhes of malt or ſcalded bran, as this will be a means of preſerving the body moderately open, moiſt and temperate.

Whenever the current of wind blows over a remarkably infected quarter, pretty full upon the doors or lights of your cattle-houſes, it would probably be no imprudent or diſadvantageous practice, to intercept its paſſage, by making fires of green wood, the leaves of trees, or other vegetable rubbiſh, or at leaſt to deflagrate ſulphur,

phur, at ſome convenient diſtance from the ſtables: by which means, the peſtiferous effluvia, with which, it is not improbable, ſuch gales of wind are too often pregnant, are turned from their channel of conveyance, and become intangled and diſſipated aloft with the purer and rarified æther.

Certain it is, that air, paſſing through the medium of fire, becomes refined and purified from its fæculencies; of which truth, *Hippocrates* muſt have been well convinced, if we give credit to what *Galen*, and ſeveral others relate of him, that he put an entire ſtop to the plague, that had invaded the *Græcians*, from the borders of *Æthiopia*, by firſt ordering the paſſages, betwixt the mountains of *Illyria*, to be blocked up, through which the peſtilential air might paſs into *Greece*, and large fires to be made about the walls of the city, into which were thrown aromatic herbs, ſweet ſcented flowers, and ointments of the fineſt flavour, that all the air, which was brought into the city, might be wafted through the impregnated flames.

But we find Doctor *Mead*, in his remarks upon this tradition, and the efficacy of the means, not only diſallowing their propriety, but citing ſome facts, which, if valid, appear momentous enough, to more than counterbalance every other ſervice that fires may be of, in contagious ſeaſons. *

He likewiſe diſcommends the firing of guns, as too raſh and unwarrantable, yet I will venture to

* See *Dr* MEAD's *Diſcourſe on the Plague.*

to ſubmit effects of the frequent exploſion of gun-powder, upon the credit and veracity of *Boerhaave*. This excellent phyſician informs us, that he himſelf knew ſeveral families, who were preſerved in time of peſtilence, by firing a drachm of gun-powder ſeveral times a day within the houſe, after the doors and windows had been carefully cloſed. †

This is certain, there is ſuch diſſention in opinion, and ſuch diſagreement in teſtimonies, even betwixt authors who claim an equal title to our confidence, that dependance is become a very precarious thing, and recommendation upon the aſſertions of others of very little authority. Modern facts are too often at variance with ancient, and theſe alternately have frequent diſcords amongſt themſelves, even in caſes exactly ſimilar, and punctually analogous, that on which ſide to give judgment with equity, and diſcriminate true merit from its ſpecious appearances, requires more refined talents, and a nicer diſcernment, than can be found in man, whoſe brighteſt acquiſitions are ſtamped with fallacy and error, and whoſe opinions too often deviate in the paths of conjecture and uncertainty.

We muſt likewiſe daily inſpect the condition of the ſetons, which, I ſuppoſe, to have been ſet, one or more, according to the urgency of circumſtances, that they be preſerved open and running, in order to which, the ſkeins muſt be occaſionally moved and anointed with ſome digeſtive liniment, mixed, if neceſſity require, with

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† *Haller* on *Boerhaave*'s *Inſtitutes de Antidotis*, Vol. VI.

a little ſoap, powdered cantharides, or any other of the ſtimulating claſs.

So exact a particularity in the managment of our ſound cattle, cannot appear ſuperfluous or unneceſſary, if we reflect, upon what minute and unſuſpected incidents, preſervation ſo frequently depends, how important the national evil, how precarious the iſſue of it, and how inconſiderable the ſum total of all our labours.

But if the ſymptoms of infection have once appeared, a care will be required from us even more circumſtantial, aſſiduous and extenſive.

None of the ſeveral means we can poſſibly make uſe of with propriety, in prevention from diſeaſe, but are contributive in part to its cure.

Prudent bleeding, in the beginning, will take place in the ſanguine, and if we have diſcernment ſufficient to diſtinguiſh its firſt appearances, a well-timed ſtimulating purgative, ſuch as will rouze the motion of the blood, and briſkly open the firſt paſſages, may cut the work ſhort, and eliminate the very rudiments of the diſeaſe; whereas if we neglect this, till the venom has diffuſed itſelf through the habit, this method will probably weaken the natural powers, and add ſtrength to thoſe of the diſeaſe; my reaſons are theſe following: It is more than probable, that the peſtilential taint is firſt imbibed by the breath, of which a conſiderable part is intangled in the ſaliva, and taken down along with it into the ſtomach and firſt receptacles of the body, where nidulating amongſt the juices, and foldings of the bowels, it is abſorbed, with the current,

rent of the chyle, into the whole maſs of blood, and compleats the fever.

If before this is the ſtate, we can throw in ſome proper purgative of the more active claſs, we ſtand a chance, not only of expelling the morbid ſeminium with the looſer fæces, but by determining the current of humours, more particularly towards the inteſtinal glands, we give nature an opportunity of diſlodging that part of the venom which has already entered within the pale of the circulation; and this event will more probably happen, becauſe the powers of nature, during the firſt ſtages of infection, have loſt very little of their integrity, and are yet vigorous enough to exert themſelves to throw off the peccant matter by the firſt paſſages of the body, or at leaſt, to co-operate with the aſſiſtance of ſuch medicines, whoſe ſtreſs of action lies in theſe parts. Whereas, when the diſeaſe has ſpread itſelf to its utmoſt pitch of malignity, purgative medicines may have a dangerous, what if I ſay, a deleterious effect; the faculties of the body are too much ſunk and proſtrated, to bear any inteſtinal evacuation, and their niſus is particularly directed towards the ſkin and external parts, as the proper emunctories of confirmed peſtilential diſeaſes. Hence, the diarrhœa obſervable in moſt infected cattle, through the ſeveral ſtadia of infection, may be looked upon as ſymptomatic, and indicative, rather, of the exceſs of the peccant matter, than of a critical expulſion.

If, notwithſtanding all our endeavours, the diſeaſe gains ground, the cattle ſhould have more

more cloathing, and be kept perfectly clean in their ſkins. The condition of the fauces ought often to be examined, and their throats frequently gargled with any emollient and aceſcent liquor, and repeated drenches of oatmeal gruel with vinegar, ſhould be made warm, and thrown down ſeveral times a day.

Whilſt the diſtemper is yet recent, or has made no conſiderable advances, I ſhall ſubmit the trial of the following medicine, upon the hint of an ingenious acquaintance, to every one who may judge my arguments for its uſe, reaſonable. It is the diaphoretic antimony, compounded with a ſmall portion of emetic tartar: I dare not undertake to aſcertain the doſe of the laſt, to a beaſt, having never had the ſatisfaction of experience to determine me; but wiſh it to be ſo proportioned, that a fainting-ſickneſs may be excited without throwing the ſtomach into any violent commotion; an effect which might, in my apprehenſion, be attended with ſome conſiderable advantages.

In every deliquium of the ſpirits, which this interval may properly be called, an univerſal relaxation attends, and a degree of diſſolution is brought upon the blood, all the ports of ſecretion are at once unlocked, and the ſeveral juices ouze out at every pore of the body, thoſe of the ſkin are in a ſingular manner affected, as is manifeſt from that cold moiſture, which always diffuſes itſelf before the ſpirits are recalled, or the paroxyſm terminated.

What effects ſuch a ſituation might have in peſtilential fevers, I leave to the determination

of

of others; but in acute and inflammatory caſes, I am very well convinced from my own obſervation, that they muſt prove ſingularly beneficial. I have ſeen a very dangerous pleuriſy, perfectly ſolved upon a lipothymia ſucceeding blood-letting, wherein, the few ounces that had been drawn, the ſtrength of the patient's body, and a natural timorous apprehenſion of the operation, which he could by no means diveſt himſelf of, though in other circumſtances of life ſufficiently fearleſs and intrepid, convinced me that the deliquium proceeded from other cauſes, than ſo partial an evacuation.

Phyſicians, I believe, generally agree, that in ſuch faintings, a temporary paralyſis ſeizes upon the heart, in which ſtate its contractions ceaſe; conſequently, no blood is thrown from its cavity into the extreme arterial and ſerous branches, the principal ſeats of inflammation, which, at this inſtant of time, acting by their proper elaſtic powers, repel the blood, with the obſtructing cauſes in a retrograde manner, from their minuter diſſeminations upon the larger canals and more central parts of the body.

May not therefore the action of ſuch united cauſes, have very advantageous effects, if artificially promoted, in pleuriſies, peripneumonies, phrenitides, or all acute diſeaſes, where there are recent and topical inflammations; after having given a little liberty to the play of arteries, by a previous moderate phlebotomy? I am very ſenſible, we may bring a deliquium animi upon the moſt athletic, by a copious and ſudden bleeding, which is very much the practice a-

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mongſt the northern phyſicians, whereby the moſt violent inflammatory fevers are quickly ſolved, and this more effectually, than if the ſame quantity be taken from the patient at different intervals; but there is this inconvenience ariſes from ſo precipitate an effuſion, that his reſtoration to health is generally very ſlow, if he does not at length degenerate into a dropſical and languid habit, the common attendants of a too abundant loſs of the vital fluid. I take the liberty thus publickly to aſk the opinion or experience of the judicious of the faculty upon the ſubject of this digreſſion, and return to the one I have a little deviated from. *

It will be adviſable to fumigate the ſtables once every day, with turpentine, tar, or any other drug of the ſame kind, which may be procured at an eaſy expence; the ſteams of vinegar, boiled over a chafing-diſh with juniper-berries, pine-tops, lavender, roſemary, or any other of the aromatic vegetables, whoſe effluvia may be diffuſed by this means, through the whole lodging, will doubtleſs contribute in giving the inſpired air an antiſeptic quality.

If, during our other endeavours, the ſetons diſcharge well and conſiderably, we may eſteem it

* The doſe to an adult may be in the proportion of two grains of emetic tartar, to half a dram of the antimon. diaphoretic.

What Doctor *James*'s fever-powder is, I cannot pretend to determine, neither would I depreciate its virtues; but if I may judge by its appearance and effects, I conclude it to be an antimonial preparation of the above kind, as I know of none, ſave ſuch a one, that is capable of the ſame qualities, in ſo ſenſible a degree, and in ſo ſmall a volume.

it a prognoſtic of ſalutary import; if, on the other hand, they appear diſcoloured, or the excretion be acrimonious, or if the ulcers have a tendency to dry up, the omen is of bad ſignification, for the condition of theſe drains will direct the judgment to determine with certainty, not only of the event, but of the degree of the diſeaſe. Hence, would I adviſe, that the ulcer be frequently inſpected, fomented, or waſhed and defended from the external air, with ſome ſoftning and mildly ſtimulating cataplaſm, and this caution obſerved from the firſt appearance of the diſorder, to its final termination; by which means, the part will be preſerved moiſt and pliable, all undue tenſion will be removed; conſequently there will be leſs reſiſtance to the afflux of humours, and their epicraſis through this channel will be more regular.

In the higher advances of the diſtemper, all the neceſſary medicaments may be ſelected from the alexipharmic and antiſeptic tribe. Such are the herbs or roots of maſter-wort, ſpignel, butterbur, viper-graſs, valerian, carline thiſtle, water germander, angelica and ſwallow-wort; amongſt the antiſeptics vinegar well dephlegmated, and nitre, are well worthy the chief places, as being the moſt powerful we are poſſeſſed of; occaſionally the mineral acids, and the bark may be called in to our aſſiſtance.

Here are a ſet of ſimples, efficacious in quality, all, excepting the bark, of our own growth and produce, procurable without any or the moſt trifling expence, and capable of the greateſt ſimplicity of compoſition: and theſe are all the

advantages

advantages we can poſſibly, or ought to wiſh to be united in medicine, eſpecially where the indigent are concerned, as in the circumſtance of the national mortality, they principally are.

I am ſorry to ſay, that a farraginous ſuperfluity is too much a prevailing fault in extemporaneous preſcription; although, by the diſcernment of our late colleges, the ſtandard *Pharmacopœias*, are reduced from a promiſcuous wild, to a great degree of elegance, and well digeſted ſimplicity, and point out to us that perfection we ought to endeavour after. For with all the advantages, which we can poſſibly imagine to ourſelves, from this taſte of crowding compoſitions, whether they are expected from the injudicious fondneſs of inhancing its virtues by variety, or from the precarious notion of reſtraining and qualifying the too powerful efficacies of ſome things, with others of oppoſite, or what are commonly called, correcting properties, we certainly ſtand a chance of loſing ſome of the moſt important ends, and greateſt poſſible benefits of medicine; thoſe of diſtinguiſhing the immediate virtues of particular ſimples, and appropriating them in caſes we judge ſimilar, with a degree of ſatisfaction and confidence; conſiderations of moſt invaluable import to the practitioner. For inſtance, to determine the effects of any one of the above alexipharmics with perſpicuity, I muſt not only have a circumſtantial regard to the time when, but the manner how I convey it to my patient, that it be uncompounded as poſſible, either in infuſion, decoction or bole; that its vehicle be ſimply agree-

able, and that he lays aſide the uſe of all other medicaments, till the judgment of the phyſician becomes as deciſive as poſſible. By this means, if I am not miſtaken, a few years would unravel more of the myſteries of pharmacy and the therapeutic art, than a great number of ages have preſented to our view.

A great deal of this imperfection, which is more peculiarly obſervable in medicine, than in any other ſcience, has been attributed to an ignorance of anatomy, the errors of a fluctuating philoſophy, the ſuperfluity of hypotheſes, and the neglect of a ſedulous obſervation of diſeaſes; but it is my ſteady opinion, that with all theſe advantages and acquiſitions, which the moderns have to boaſt of above the ancients, phyſic would have, and will remain, a very precarious art, an ars conjecturalis, as *Celſus* terms it, without an accurate knowledge of pharmacy in its moſt extenſive acceptation, and a reduction of it from that molis rudis & indigeſta, to a ſtate of firſt principles, and compendious elegance. *Hippocrates* indeed was remarkably diſtinct, ſimple, and adequate, both in his notions of diſeaſes, and of the means he employed to remove them; but examine the pharmacy of all his ſucceſſors, down from the records of *Galen*, through the ſeveral *Grecian* and *Arabian* writers, to the bulky volumes of the *Germans*, and from theſe, to within a few years of the preſent time, and we ſhall find nothing but a confuſed jumble, a mere ſenſeleſs farrago, which ſets the judgment at defiance, and takes away from it all power of diſcerning, either the deſign of the compiler, or, from

from the variety of antagonizing ingredients, what kind of poſſible virtues to attribute to the compoſition.

Here has been one of the grand barriers to medicinal improvement, which I rejoice to ſee daily broke in upon, by the diſcernment of better judging moderns, and authority of a reformed college; and I yet hope to ſee the practice of phyſic flouriſh, under all the advantages that muſt ariſe from a ſteady adherence to the following rules:

That there be one principal intention, throughout the whole of the precept. That as few may enter aſſiſtants, or, that there be the greateſt ſimplicity of choice poſſible. That there be not only a ſimilitude of deſign, but a natural aptitude of every ingredient, to that particular form it is propoſed to enter. Beſides theſe, the ſight, ſmell, and taſte, ſhould be each conſulted, to which every compoſition ſhould be made as agreeable as it will admit of, and yet be of efficacy enough, to render a proper doſe eaſy to be taken.

Thus will the phyſician, at his entrance into the chambers of the diſtreſſed, be no longer the object of their diſguſt, nor his preſcriptions nauſeated, becauſe of the redundancy of loathſome materials; but, on the contrary, he will ſee himſelf with ſatisfaction, the repoſitory of common confidence, and characterized for thoſe very qualities, which form the eſſential ornaments as well as buſineſs of his profeſſion. *Sed vela contraham.*

One or more ingredients may be choſen from the few ſimples I have mentioned, and exhibited in decoction and infuſion, with a proper addition of vinegar and nitre, as I look upon theſe forms as much better adapted than any ſolid one whatſoever, which, from the immediate application of their parts to the nerves of the inteſtines, act with too powerful a ſtimulus, and are more likely to call back the circulation from the circumference of the body to the ſeat of irritation, an effect directly oppoſite to the intention of the preſcriber; whereas, in decoction or infuſion, the form itſelf is made a proper vehicle, well fraught with the virtues of the ingredient, capable of inſinuating itſelf through the ſeveral ſtrainers of the firſt paſſages, and conveying it through the maſs of juices to the ſeat of action.

I cannot think theſe kinds of medicines are indicated at the very beginning of the diſeaſe, for reaſons I have before alledged, but in the progreſs of it, or more advanced ſtages, when the fever is become confirmed, and there is an evident propenſity to throw off the morbific matter upon the ſurface, they may aſſiſt and promote the deſigns of nature, if adminiſtered with prudence and propriety.

But, there is certainly a great deal of caution required in the uſe of ſuch powerful agents, as are all the alexipharmic ſimples and preparations, more eſpecially in malignant fevers; otherwiſe, whilſt we are deſigning our patient the greateſt relief, we are doing him the moſt irretrievable damages. It being an infallible truth, that no medi-

medicine, capable of producing the greateſt good, when well applied, but is likewiſe capable of effecting a proportional evil, when improperly adminiſtered.

There are no medicines more common in preſcription, as may be proved from the files of the ſhops, than alexipharmic compoſitions, eſpecially where diſeaſes, which may be poſſibly called by the general name of fevers, are concerned; and, it is probable, the generality of them may be wiſely applied, and attended with the expected ſucceſs; but I muſt beg pardon, if I cannot think they all are; nay, I am ſatisfied they are not, having remarked, in my ſhort contracted courſe of obſervation, ſome very evident pernicious effects from their injudicious and miſapplied uſe, even from the pens of phyſicians, whoſe characters bore high in the world, and ſcreened them from ſcrutiny from any quarter: dame Nature has always been accuſed of delinquency in ſuch caſes, and bore the blame from all hands; whereas, could ſhe herſelf plead her own cauſe before impartial judges, ſhe would ever appear not only unblemiſhed, but meritorious, and the odium would revert upon its proper object.

All the alexipharmic and diaphoretic roots, with the various compoſitions into which they enter, the cordial waters, tinctures, and officinal electuaries, are each capable of the moſt ſenſible agency, nor can they poſſibly be adminiſtered without evident effects, either highly noxious or beneficial. Not only their chymical analyſis, but their taſte and ſmell, indicate them

to be turgid with principles of a hot, acrimonious, and highly volatile quality, which, when received into the body, will there act as ſtrong ſtimuli, conſtantly ſoliciting the heart and arteries to repeated contractions, and hurrying on the blood into violent agitations, which, if already, by the diſeaſe itſelf, too impetuous, muſt be attended with an aggravation of all the ſymptoms; conſequently in acute, more eſpecially in peſtilential and other contagious caſes, they will rarely ever take place, excepting there is, in the common acute, an apparent propenſity to terminate the diſeaſe by a critical diaphoreſis; or, in the epidemic and malignant, a diſtinguiſhable conamen to diſcharge the peccant matter in form upon the exterior parts, either in cutaneous abſceſſes, or glandular impoſthumes, as is the caſe in the plague, and even then the other ſecretions ought to be firſt unlooſed, and the body preſerved in a ſtate of temperate ſolubility.

Moreover, I don't recollect an inſtance, where, in ſuch diſeaſes, the liberal uſe of them is ever allowable, nay, where they are not effectually prejudicial, without being properly diluted and attemperated by acids and nitre; without theſe aſſiſtants, the peſtilential miaſma is ſo far from being expelled, that it is rather retained, and more deeply rooted in the conſtitution: for it is an undeviating law in the animal oeconomy, that the ſecretions, preceding the excretions of the recrementitious part, ſucceed better, when the humours are moderately and freely conveyed to

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the emunctories, than when they are thrown into violent commotions.

Hot medicines rather increaſe the uneaſineſs and anxiety, which is generally complained of about the præcordia, augment the heat, and promote the diſſolution of the blood, induce ſpaſms upon the nervous parts, and do the greateſt violence to the operations of nature. This is ſufficiently clear from all the authors, who have lived and acted where the plague has raged, eſpecially from the teſtimonies of *Hildanus*, *Chald. de Heredia*, *Diemerbroeck*, and *Thonerus*, who informs us, "That thoſe who uſed the "hot alexipharmic medicines alone, died of the "plague."

Whereas, when joined with vinegar and nitre, they will anſwer the moſt beneficial purpoſes, without any hazards or inconveniences to counterbalance the advantage.

The writings of various reputable phyſicians, teſtify to us the antiſeptic and antipeſtilential qualities, that are inherent in thoſe two medicines alone, and the moſt judicious have almoſt laid the whole ſtreſs of their practice upon them, and made them the moſt conſiderable means, both in the prophylaxis and therapeutia. They enter moſt of the compoſitions of *Johannes Langius*, a very celebrated author, whoſe opinion, obſervations and method, in the cure of the plague, are exceedingly judicious. *

Fracaſtorius principally depends upon the following medicine, both for prevention and cure,

* Lib. I. Epiſtol. 18.

in which, I think, there is connected both great elegance and propriety.

℞ ſucc. acetoſel. ℥ij. citrj ℥j. diaſcord. frac. ℥j. ſpec. cordial. ℈ij. aceti ℥j. *m.* *

And in looking over *Diemerbroeck*'s hiſtories of peſtilential caſes, I have remarked, that the moſt apparent ſucceſs has attended his practice, wherein were combined the warming with the nitrous and acid medicines; and indeed he is not only very liberal in the uſe of them, but in his encomiums of their good effects, throughout moſt of the ſtages of this diſtemper.

Here I cannot avoid taking notice of a moſt baneful and pernicious practice, which, unhappily for the objects of it, is too generally prevalent throughout, but more eſpecially ſo, amongſt the inferior and labouring claſs of people, whoſe nerves being ſtrung to an athletic pitch, by aſſiduous toil, become too regardleſs of common danger, and expoſe themſelves alike to the inclemencies of all ſeaſons.

Such, although they are very rarely acquainted with diſeaſe, yet, from an exceſs of ſecurity, indiſcrete expoſures, and irregular ways of life, are ſometimes unavoidably ſubject to colds, whoſe firſt appearances are too generally overlooked, and left to be expelled by the favourable efforts of a good conſtitution; but if this fails, and the indiſpoſition ſtill increaſes, if the ſhivering, pains of the head and back, heavineſs of the whole body, and other ſymptoms of an approaching

* *De Morb. Contag.* Lib. III.

ing fever, grow more urgent, they are yet ſcarcely alarmed, from an infectious notion that they have it, at any time, in their power to put an effectual ſtop to the diſorder, and chaſe it from the heart, as their term is, by bringing upon themſelves a profuſe ſweat; and in the ſecurity of ſo dangerous a prepoſſeſſion, they probably leave it ſtill further to its own advances, till a vacancy in buſineſs will allow them the uſe of ſo ſovereign an antidote.

When this happens, their method is commonly the following. In the evening, they prepare a brandy poſſet, or ſome domeſtic drench of equivalent virtues, and generally well ſaturated with ſpirit and the fiery ſpices, which, to render more certainly efficacious, they ſwallow down, as intenſely hot, as it is poſſible for fleſh to bear without ſhrinking; many have the cuſtom of preſcribing for themſelves a large alexipharmic bole, of venice treacle or mithridate, which they ſuperadd to the above potion; ſo that, not ſatisfied with one ſuch powerful inſtrument, they join actual and potential fire in concert; after which, they go to bed, and wrapping themſelves up with a load of bed-cloaths, wait the iſſue with the ſecureſt confidence. — But alas, hapleſs ſecurity! precarious expectations! I have repeatedly with ſorrow obſerved them to be ſuch, as the practice is no where more common than in this country. It may ſometimes anſwer, but the event is very frequently this; a ſweat, or rather a profuſe broil is raiſed, according to expectation; but in lieu of relieving the patient, every ſymp-

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tom becomes intenſely aggravated; the humours are hurried round with the moſt impetuous rapidity; their fineſt parts are diſſipated by a continual diſpendium, without any reparation for the loſs; the red globules are robbed of their vehicle; in ſhort, the moſt injurious violence is done to nature, and the torch is lighted up of an irremediable fever; obſtructions and inflammations of the worſt kind, as is eaſy to imagine, and is generally the caſe, are ready to form themſelves; the meninges of the brain are frequently ſeized, attended with inceſſant deliriums, peripneumonic anxieties, intolerable hypochondriacal tenſions, or gangrenes of the bowels; all, or ſome of this melancholy train, generally cloſe the miſerable tragedy.

But when the taper of life waxes dim, and the ſpirit, juſt diſembodying itſelf, ſtands hovering upon the brink of futurity, then is the Doctor called in with hue and cry: but what is his proper office, or how is he to conduct himſelf in ſo deplorable a ſcene? The poor ſufferer has exiled himſelf from the laws of medicine, and the arts of *Eſculapius* are all in vain; well, he is to grace out the ceremony, and as the common though too true expreſſion runs, to give a formal ſanction to the unhappy creature's exit: and it is well, if after all, he does not bear a load of cenſure, for not being able to effect a miraculous cure.

This, I have too much reaſon to conclude, is a rock upon which thouſands of conſtitutions have and are daily ſplit; a practice ſo raſh in itſelf, and ſo fatal in its conſequences, that the moſt

moſt virulent poiſon is not more certainly deleterious; and the only difference betwixt them conſiſts in this, that in one caſe the wretch may become his own executioner through ignorance, in the other through deſign.

It is indeed poſſible, and ſometimes happens, that ſuch will break through the utmoſt ſeverity of the diſeaſe, and make a ſhift to turn the goal in ſpite of its every aſſault; but, even then, their ſafety may be properly compared to that of a ſtrong built bark, which, from the vigour of its own bottom, ſets the waves and the winds at defiance, and rides into harbour through the greateſt violence of the ſtorm; but, alas, in ſo ſhattered a condition, ſo bulged and deformed below deck with beating againſt the rocks, and ſo torn and tattered above, that the whole veſſel becomes condemned by its owner, as incapable of any further uſe, or of anſwering the expences of refitment.

Juſt ſo appears the unhappy wretch, the meer ruins of what he once was, reduced from the ſtandard of perfect health to the loweſt ebb of emaciation and miſery, groaning under chronical infirmities, the relics of the late ravages, and wandring about, the remainder of an unhappy life, a victim to his own folly, and repining at the atrocity of his fate.

Whereas, by ſuch lenient methods as the following, opportunely employed, it is poſſible to avert all this heavy train of evils. A ſpark is quickly extinguiſhed; and the way to do it, is not, certainly, to blow up the coals, or throw ſpirits upon the kindling flame. And young, as I

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muſt acknowledge myſelf to be, in practice and obſervation, yet ſuch obvious deſtruction muſt awaken even the dawn of reaſon into a knowledge of its cauſes, and give it to diſtinguiſh by what means to avoid the paths of ſuch notorious ruin: and I have the ſatisfaction to think, where my perſuaſions have had a ſuperior influence to common prejudice, ſuch gentle uſage has been followed with every wiſhed for advantage.

Upon the appearance of the above-mentioned ſymptoms, I have ordered the perſon to confine himſelf in his chamber for ſome time before evening, and having provided a few quarts of very ſmall whey to be kept warm, I begin, ſeveral hours before bed-time, to give him of this liquor, by a gill, or even leſs at once, and repeated every quarter of an hour till he goes to bed, when I order the laſt draught ſomething warmer than the preceeding; after which, leaving him to his reſt, without regarding to ſtove him under a ſuperfluity of bed-cloaths, I wait the iſſue, which I think I may ſay has always been this. No profuſe ſweat followed at the beginning of the night; but, in its room, a breathing moiſture gradually diffuſed itſelf over the whole body, and continued equal and flowing till the morning, with an abſence of every bad ſymptom; the ſpirits have been freed from oppreſſion, every faculty became light and agile, and a gentle conciliating ſleep has terminated the whole diſorder.

The reflection becomes very familiar and eaſy, that ſuch lenient ſteps muſt neceſſarily be attended with ſuch advantageous conſequences. The quality of the liquor is temperate, aceſcent, and ſaponaceous;

ponaceous; and exhibited in ſuch quantities, as gradually to inſinuate itſelf through the lacteals, mingle with and diſſolve the lentor of the juices, without giving off any remarkable ſecretions, till ſuch a time as the body becomes prepared for them; when the mild warmth of a bed, opening all the pores, and drawing the gentleſt flow of humours towards the ſkin, ſets the whole circulation at liberty. Beſides, all the other emunctories are ſet open, and the patient has generally towards morning a temperate ſtool, and a moderate excretion of urine, depoſiting an hypoſtaſis, which, from the concomitant effects, may be properly termed critical.

From ſentiments ſuch as theſe, which I freely ſubmit to the reader's unprejudiced peruſal, I ſhall venture to make a tranſition to what further occurs to me.

FIRST cauſes, we muſt acknowledge, are ſituated far beyond the bounds of our reach; they are only known to the Moſt High who formed them, but are hid from our eyes, if not from all the ſubordinate beings under heaven, amongſt the numberleſs inſcrutable myſteries of ſupreme wiſdom.

But although we cannot comprehend the ways of the Omnipotent, nor explore the fountains of divine Sapience; yet we may with gratitude own, that our happineſs depends not upon our knowledge, nor our ignorance made the means of a curſe to us. We can contemplate the glorious effects of that almighty Energy, which, from the

into

receſs of unchangeable beatitude, ſpoke all beings into birth, and beautified the ſcenes of the world by the fiat of eternal beneficence.

This adorable primæval firſt cauſe, the immutable Jehovah, though he fills all the ſpaces of heaven with his preſence, yet condeſcends to accept from us that kind of admiring reverence, wherein language faulters for utterance, and the ſolemnity of ſilence is beſt expreſſive of ſo ineffable an image.

Aretæus calls nature, The art of the Godhead; and not improperly, for herein, as in a mighty volume, has he ſtamped the indelible ſignatures of his majeſty, and diſplay'd the wonders of his creative power in characters that will be for ever legible.

How amazingly numberleſs, above all conception, muſt be thoſe eternal productions, the wondrous traces of divine omnipreſence, which are ſcattered through the wide interminable regions of infinity, and become perpetual ſources of delight and raviſhment to the immortal hierarchies! how endleſs muſt be their ſucceſſion! if in this little ſcene of man, this ſpeck of the univerſe, there are phænomena every moment occurring to us, lying obvious and expoſed to the paths of our moſt inactive ſenſes, whereat the pride of man is laid low, and his arrogance in the extent of his attainments, becomes baffled by the ſevereſt evidences of imperfection? "The "ſoul, ſays *Steno*, which imagines it can pene-"trate into every thing without it, and that no-"thing in the world can ſet bounds to its know-"ledge, is, nevertheleſs, utterly at a loſs to "deſcribe

" deſcribe its own habitation, and is no where " more to ſeek than at home."

How unavailing appears all our philoſophy, when directed to inviſible agencies; how inadequate our moſt refined talents, when employed about immediate and efficient cauſes, or the conſtitutive eſſences of things! All our diſquiſitions are vague and precarious; and our concluſions, though advanced with the higheſt air of poſitiveneſs, but barely fluctuate among the ſhallows of probability. Scientifical certainty is by no means an attribute of the human underſtanding.

The liberty of philoſophizing is certainly one of the greateſt ornaments, as well as diſtinguiſhing privileges of the mind of man; but then to indulge ourſelves in diſquiſitions after indiſcoverable cauſes, is not only an abuſe of ſo noble a prerogative, and an actual miſemployment of thoſe precious moments which are given us for better and more valuable purpoſes, but can be conducive to no other end, than the gratification of a vain and oſtentatious ſpirit. It is to overlook thoſe treaſures which are ever open and acceſſible to us, and to perſevere, with the moſt obſtinate ſtupidity, to knock at the very door which has been inviolably ſhut for upwards of ſix thouſand years by-paſt.

Certain it is, that the ſum of every quality of the underſtanding, and of all the knowledge which it is poſſible for man to arrive at about the things of this world, has an immediate reference to the ſituation of his heart, as this has a direct tendency and retroſpect to its divine original and fountain.

For,

For, ſuppoſing man to be the only creature throughout this ſyſtem of providence that has duly received qualifications from the great Author of his being, to know, love, honour, and to enjoy him; it will prove an infallible truth, that if our affections are not engaged by the diſcovery of his wonders in the beauty, order, and oeconomy of his creation; if our gratitude is not incited by a due ſenſe of his boundleſs benefactions; if our hearts are not improved, and our conduct influenced, by an awful idea of that ſupreme Being from whence flow all the bleſſings we receive; in ſhort, if the employment of our thoughts be abſtractedly on the productions of his power, without directing them to their eternal Former; a folly is imputable to us, equal with that of forfeiting the glorious privileges of improving a moſt invaluable and undecaying patrimony, for the empty amuſement of running after ſhadows.

Vain and fruitleſs for ever would be our ſearches, whence ariſe the various powers of vegetation, or how the leafy verdure is unfolded from the ſeminal embryo; why the roſe-bud diſplays its crimſon, or the lilly its whiteneſs. As little can we account for the amazing ſympathies of body and ſpirit; how the will and the imagination act upon this material compound, or how they reciprocally move upon the mental affections.

Uſeleſs would be all our endeavours to inveſtigate, whence ſprings the ſtupendous power which lurks in the peſtilential miaſma; or wherein conſiſt the various inviſible energies which propagate infection round the world. In ſhort, ſo limited

and

and imperfect is all our boaſted knowledge of nature and natural cauſes, that I am ready to conclude with the ingenious Dr *Brown*, where he aſſerts,—" That it is not within the compaſs " of the human underſtanding to aſſign a purely " ſpeculative reaſon for any one phænomenon in " all nature." And this is a truth no leſs fundamental in phyſic, than it is unerring in philoſophy.

All our moſt abſtracted reaſonings about the different ſpecies and effects of medicines, from what minutia of texture and form they derive their peculiar qualities and attributes, are chiefly drawn from ſuppoſitious and unſettled principles; conſequently are fallacious, fluctuating, and full of perplexity. But the number of thoſe, who think every thing eaſy, is infinitely the greateſt; and they give us the reaſons of things, the diſpoſition of the minuteſt parts of matter, and whence ſprings its determinate ways of acting, with the ſame confidence and aſſurance, as if they had been preſent at the formation of the world, and had been let into all the deſigns of its almighty Architect.

This is very certain, that what part of real determinate knowledge, and accuracy of judgment, we are poſſeſſed of, is calculated from familiar appearances and ſenſible effects, and may be reſolved finally into principles of obſervation and pure experiment.

And it is this purely experimental knowledge of nature alone, which is, a degree of it at leaſt, aptly ſuited to our preſent ſtate and condition in this life; it anſwers all the neceſſary ends of our

well-being and preſervation; our reaſonings are always attended with a moſt happy ſucceſs, in uniting the truths of experience with the conveniencies of life; we proceed from diſcovery to diſcovery with ſurpriſing facility; our intelligence and illuminations increaſe upon us, and become every where proportional to our ſeveral wants and occaſions; and inſtead of being chagrined at the narrowneſs of our conceptions, we ought rather to pay a tribute of praiſe and thankfulneſs to the good providence of the Almighty, in that he has, by the contraction of our rational faculties, been moſt mercifully indulgent to us, and prevented us from falling into numberleſs manifeſt and unavoidable inconveniencies. For were the eyes of our underſtandings, as the very excellent author of *Nature Delineated* expreſſes himſelf, more perfectly illuminated, we ſhould be more ſolicitous about what we ſaw, than what we did; we ſhould ſcorn to grovel, as we do, upon the ſurface of the earth, could we but behold the ſtars, or form any comprehenſions of what is tranſacting in thoſe regions which lie at ſuch inconceivable diſtances beyond us.

Theſe kind of inquiries, eſpecially, belong not to the phyſician; of all theſe ſecrets he may be entirely ignorant, and yet act up to every conſcientious becoming duty of his profeſſion. His ambition ought to extend no farther, than to acquit himſelf the faithful ſervant of nature; that by an attentive experience, and ſolid phyſical reaſonings, though he cannot induce geometrical ones, he may be enabled to diſtinguiſh betwixt thoſe things that are certainly beneficial and ſalutary,

tary, from what is offenſive and injurious to her. And in this propriety of conduct, this combination of judicious inquiry, with well-conducted experience, conſiſts the eſſential and diſcriminating character of a wiſe phyſician. And truly, without the ſame concurrence of theſe two qualifications, the oldeſt practitioner, though he lives to the age of *Neſtor*, and grows grey-headed in the exerciſe of his art, is very little better, as to the ſcientific part of medicine, than an old nurſe, who never deviates from the track ſhe firſt trod, nor has any other ſcheme but her own narrow conceptions in view.

Peſtilence is one of theſe ſurpriſing effects from abſolutely myſterious and inſcrutable cauſes, yet whoſe meanders we may trace a conſiderable way upwards, upon the charts of hiſtory and obſervation, with ſome clearneſs of proſpect, at leaſt, as far as the ſearch appears intereſting to us; but in what remote place of nature ſprings the infectious fountain, or from what diſtant ſources are derived thoſe pervaſive and deleterious qualities, which have ſo oftentimes depopulated and laid waſte the habitable parts of the world, furniſhes us with matter of amazement, and in amazement ſolely, as the mind's more ſedate emotion, ſhould all the ſolicitude of ſpeculation diſappear.

It is ſufficient for us, to know the common inroads of infection, and the ſigns which indicate its approaches, that we may, with a ſatisfactory confidence, expedite proper means to intercept it in its paſſage, and counteract its firſt appearances; or, if it ſhould gain ground, and is actu-

ally undermining the conſtitution, to diſtinguiſh the peculiar methods which nature employs, and what ſhe genuinly points at, to expel ſo dangerous an enemy.

This nature, whoſe name is ſo often invoked, and whoſe influence ſo frequently appealed to, is a benign being, ever acting conſiſtent with herſelf, uniform and undeviating in the intent of her conduct; and when applied according to the ſenſe of a more extenſive philoſophy, is ſuch an admirable diſpoſition of all created things, that they proceed to their various appointed functions with a determinate regularity and order, performing nothing in vain, but only what is beſt and fitteſt for the whole frame of the univerſe, and the peculiarity of their own natures; and ſo are actuated like machines, not by any wiſdom of their own, but by that of the eternal Artiſt.

But when the term *nature* is medicinally applied, its uſual acceptation will appear ſufficiently definitive and intelligible in the words of *Hoffman*.

" By *nature*, we underſtand no other, than a " progreſſive and circular motion of the blood " and juices, depending on the reciprocal con- " traction and dilatation of the heart and veſſels; " by which orderly motion of both, there is a " continual ſecretion made of the uſeful and nu- " trimentitious parts, which ought neceſſarily to " be retained for the ſervice and ſupport of the " body, and an excretion of the uſeleſs and recre- " mentitious, which would be diſcharged thro' " the proper outlets and ſtrainers."

This

This is her conduct in a ſtate of health, and from which ſhe never errs, when oppreſſed with diſeaſes, which, in the language of the obſerving *Sydenham*, how prejudicial ſoever to the body, is no more than a vigorous effort of nature to throw off the morbific matter, and ſo recover the patient; and if we, with the ſame vigilance and accuracy, ſearch into the riſe, progreſs and termination of diſeaſes, we ſhall certainly find nature acting with an undeviating ſteadineſs, in producing, carrying on, and terminating them; provided her ſalutary labours are not intercepted by ſome accident or improper means.

As a ſimple fever is no other than an endeavour of nature, to throw off ſomething offenſive to the habit, by ſome proper critical diſcharge; which ſhe often effectuates through the pores of the ſkin, the kidneys, the inteſtinal glands, or ſome other of the various ports of ſecretion; and theſe evacuations become more profuſe or complicate, according to the degrees of violence, or peculiarity of the acting cauſes.

So in epidemic diſeaſes, or thoſe which go and return with the temperament of the ſeaſons, the different ſpecies of them are known by remarkable and diſtinguiſhing ſigns, which, though variable in the force of their effects, yet are uniform and congruous in their natures.

Thus, in the ſmall-pox: there is a certain unerring tendency in the diſeaſe, to diſcharge itſelf by peculiar puſtulary eruptions upon the ſurface of the ſkin, which, as this is known to be the proper outlet, and towards which, nature always

directs her powers, it is the duty of the phyſician to watch and to aſſiſt.

Thus likewiſe, from the mildeſt epidemic and exanthematous diſeaſes, to the moſt malignant and fatal, from the meaſles to the plague, we obſerve invariable ſymptoms evidencing the diſeaſe, and particular attempts of the conſtitution to unload itſelf from the peccant matter.

The critical and ſalutary diſcharge, which moſt ſucceſsfully effects the ſolution of peſtilential diſeaſes, is obſerved to be, by laudably impoſthumated tumours upon the inguinal, axillary, parotid or maxillary glands, in which the venom has been proved to be actually and formally contained; carbuncular eruptions may be looked upon as ſymptomatic rather than critical, as they make their appearance only in the more dangerous caſes, and have a general tendency to gangrene, ſeldom or ever admitting a favourable ſuppuration; a ſtrong indication of the predominance of peſtilential acrimony.

Since therefore exterior local inflammations are the evident attempts of nature in this diſeaſe; and as our ignorance of the ſpecific quality of the venom makes it impoſſible for us to counteract it by ſpecific agents, to promote the happy termination of theſe tumours by every rational and approved means, is the duty of the phyſician, and ought to be the deſign and ſcope of his practice.

Upon the preſumption of being indulged with the reader's farther attention to a concluſional enquiry, I will venture to call air, the general vehicle

vehicle of infection; and the winds and clouds, the more active and circulating means of its paſſage.

The circumambient air is that fluid, which, of all others in the world, is the moſt immediately neceſſary to the life of mortals; we are obliged to inſpire it, be it what it will, from the very laws of our exiſtence, and an unavoidable neceſſity; and of the great importance of its purity, every man is philoſopher enough to be extremely ſenſible; but the valetudinarian more eſpecially ſo, whoſe temperament of body fluctuates with its minuteſt changes, and indicates to him the exact balance of the atmoſphere.

The other cauſes of diſeaſes, as *Ætius* long ago judiciouſly obſerved, are not every day occurring to us, nor are we all at once obnoxious to them; but the air that preſſes upon our bodies is circumfuſed around us every where, and becomes an intimate part of our very eſſence; hence the various alterations it undergoes, from hot and dry to cold and moiſt, beyond a certain degree, muſt be continually influencing and perverting our frames. And all the ancient phyſicians, in a particular manner, were ſo perfectly convinced of this demonſtrable truth, that their diligence was uncommon, not only in correcting the bad qualities it may contract at particular ſeaſons, and in preventing their noxious effects upon the human body, but in rendering it even medicinal and ſerviceable in the cure of diſeaſes.

The judgment of *Hippocrates* is no where more meritoriouſly definitive, nor his ſagacity more diſtinguiſhable, than where he treats of air

and its properties. It is evident he beſtowed indefatigable pains to inveſtigate the tendency of its differing qualities, and of what ſpecies of diſeaſes each, ſeparately or conjointly, were in a general way productive; and in the proſecution of theſe inquiries, he found every revolving ſeaſon to have its attendant epidemic, and that the departure of the diſeaſe became certain as the alteration of the weather, which he therefore attributed to ſuch changes as their genuine cauſes; and from theſe obſervations, he eſtabliſhed various principles of prognoſtics with a peculiar accuracy, and of a deciſive and practical knowledge; handing down the celebrated monument of his labours to poſterity, which, through the ſeveral deſcending ages, the wiſer phyſicians have imitated by their own remarks, and have laid down to themſelves certain rules of judgment, which have proved as way-marks to the underſtanding in the courſe of practice, and have rendered the exerciſe of the art eaſy, ſatisfactory, and beneficial.

It is not with any degree of reaſon to be imagined, that a pure, homogeneous, or elemental æther can be found within a certain diſtance of the earth: for as the globe we inhabit is compounded of an infinite variety of bodies, with qualities as various and complicated; ſo the influence of the ſun, and other cauſes, are perpetually acting upon them, looſening and volatilizing their ſubtler parts, in the form of exhalations, fraught with the individual qualities of thoſe maſſes from whence they are derived.

Amidſt ſo great an aſſemblage of differing particles, ſome will doubtleſs be poſſeſſed of a ſalubrious

brious and invigorating virtue whilſt others, on the contrary, will have properties of a malign tendency, and fatal to the body that receives them; which qualities will be found through all the ſeveral poſſible or conceivable degrees. Their diſtribution throughout the atmoſphere we may ſuppoſe to be irregular and vague, conſequently their effects upon the conſtitution will be caſual and adventitious.

The inequality with which ſuch corpuſcles are diſſeminated, may ſometimes occaſion alarming accidents or precipitate cataſtrophes; but if, from certain myſterious cauſes, they are more uniformly diffuſed, and the whole maſs of air, betwixt determinate limits, is contaminated, an epidemic may be produced, of ſome ſpecies, with greater or leſs degrees of violence or malignity.

It is very obſervable, that mankind are liable to various changes and affections from very obſcure cauſes. The temperaments of the moſt healthy and athletic undergo ſtrange alterations, and are rendered diſeaſed and enervated by ways ſurpriſing and unaccountable; whilſt others, of a leſs happy ſtructure, enjoy no calm interval in ſecurity, but are hourly perplexed with the inſtability of their ſituation. To what therefore can we attribute theſe effects, but from aerial influences?

Theſe cauſes, which exert a baneful predominancy over the human frame, we may reaſonably imagine are fewer in number, and more ſparingly diffuſed; but as ſudden deaths are not unfrequent, even where no dangerous epidemic, ſuch as the plague, is either predominant or ſuſpected, I can't even ſuppoſe they are all occaſioned by apoplectic

plectic ſeizures, to which they are in a general way attributed.

From moſt practical authors who have wrote their obſervations upon peſtilential diſeaſes, theſe kinds of calamitous inſtances are too often occurring. The healthy and ſtrong, who, in the courſe of nature, might be preſumed to live to an advanced old age, have been ſnatched off in an inſtant of time, and with circumſtances ſo ſingular and ſurprizing, that no traces of contagion have been diſcoverable upon the relinquiſhed body; all the organs of life appeared ſound and untouched, and the vital fluid was conſiſtent and untainted.

From ſuch attendant circumſtances as theſe, I conclude ſome organ to be affected, the conſtant action of which is eſſentially neceſſary to the continuance of life; as a ceſſation from its important office, during the ſpace of a very few ſeconds of time, will be inevitably attended with a total extinction of the vital flame.

The lungs may, with propriety, be deemed ſuch an organ; which, for theſe above reaſons, with the concurrence of other ſtriking appearances, I therefore look upon as the primary ſeat of the diſeaſe, and wherein its effects have terminated; and it is by no means improbable, that ſome adventitious exhalation, impregnated with peſtilential poiſon in the higheſt degree, had been imbibed with the breath; which immediately corrugating the veſſels of the lungs, circulation, with all its attendants, voluntary motion and ſenſation, inſtantaneouſly ceaſed.

Various

Various have been the ſentiments of authors reſpecting the ſpecific quality of theſe baneful effluvia, wherein the notions have been generally drawn from reflections upon chymical principles; but amidſt ſo great a variety of ſuppoſition, and where ſuppoſition alone can take place, if I may be allowed the liberty of conjecture, or rather aſſent to the moſt probable, it would center upon the rubigo or mildew.

This rubigo is a dew impregnated with highly corroſive powers, whereof a proper knowledge is by no means impracticable or unneceſſary.

Frederic Hoffman, diſcourſing of the numerous cauſes which may give riſe to epidemic conſtitutions, eſteems this corroſive dew one of the principal, whereby, not only mankind are liable to be affected with peſtilential diſeaſes, but, likewiſe, every ſpecies of animals: and the opinion of this author is in a great meaſure confirmed, by his obſervation of what happened in the principality of *Heſſe*, during the years 1693 and 1694, where the herbage appeared blaſted and diſcoloured by the fall of theſe acrimonious dews; and, at the ſame time, a very great mortality raged among the horned cattle, whereof whole heaps died of the pulmonary phthiſis.* And in his reaſonings upon the ſpecific nature of the rubigo, he obſerves, that a very penetrating and highly corroſive ſpirit may be chymically extracted from degenerated dews, which has a remarkable ſolvent power

* Anno 1693 & 1694. In *Haſſia* rore valde corroſivo infecta ſunt vegetabilia, unde coacervatim boves vaccæque ſuccumbebant necatæ phthyſe pulmonali.

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power upon metals. Moreover, he gives it as his opinion, that whenever they depart from their native and inoffenſive qualities into different degrees of acrimony, and are taken into the body with the aliments or reſpiration, prove the certain cauſes of various epidemical afflictions; whereof he enumerates dyſenteries, anginæ, ophthalmæ, apthæ, inflammations of the fauces, diarrhœas, tertian and quartan fevers, purples, and coughs: "For, ſays he, all theſe are "the genuine offspring of a highly corroſive "ſalt." And, to me, there appears a great deal of conſiſtency in his arguments, the cauſes correſponding extremely well with the obſervable effects.

Ramazzini, in his *Conſtitutiones Epidemicæ*, attributes the riſe of a very dangerous fever, which firſt appeared amongſt the farmers and country people, afterwards ſpreading amongſt the citizens, to a redundancy of corroſive ſalts, floating in the air, and falling with the dews during the night ſeaſon; whence every ſpecies of vegetables were infected with what he terms, *Rubigalis Lues*; the blackneſs that appeared univerſally upon the corn and fruits, afforded a very melancholy proſpect to the poor labouring ruſtics, whoſe ſubſiſtence depended upon the produce. The ſame year was remarkable for a ſcarcity of honey; moſt of thoſe animals, whoſe nouriſhment conſiſts upon what they extract from flowers, or other parts of vegetables, died or languiſhed from meer hunger. And we may, from this obſervation, judge of the cauſe, why moſt of the ancient writers have placed the ſilence of the

the grafshopper, and the drooping inactivity of bees and the filk-worm, amongft the prefages of impending peftilence.

From fome experiments which the above author made upon the leaves of thofe plants he obferved were moft liable to be blafted, in order to form a judgment of the quality of this rubigo, he found that the phænomena were moft circumftantially produced by means of a mineral acid, (not at all by the alkalious falts.) This fact may appear contradictory to one that is well known and eftablifhed, that of the putrefcent ftate of the juices in the plague; but the objection is removed upon reflecting, that although a corrofive acid may be the caufe of the difeafe, yet an alkaline acrimony may take place in the blood; for the action of any corrofive acid will ceafe, upon the injury of the bowel to which it is immediately applied; and the feveral fluids may owe their depravation to a fecond caufe, to wit, to the lofs of an organ effentially neceffary to the prefervation of their proper temperament. Whereupon, following their own nature, they will degenerate into an alkalious putrefcence. Neither do I conceive, how it is poffible for an acid of this kind to make its way into the blood, as it muft block up its own paffage from its infeparable qualities; upon corrugating the animal fibres, and coagulating the blood, its proper effects will entirely ceafe.

The ancient *Romans* were fo well appriſed of the pernicious effects of mildew, and had fo often experienced its feverity, that they confecrated a temple to an imaginary god, whom they worſhipped

ſhipped under the name of *Robigus*; inſtituting, according to *Pliny*, in the reign of *Numa Pompilius*, the *Feſta Rubigalia*, which were celebrated upon the beginning of May. The appropriated ſacrifice was a ſucking whelp; whence *Columella:*

Hinc mala rubigo, virides ne torreat herbas,
Sanguine lactentis catuli placatur & extis.

So likewiſe the *Feſta Floralia* were ſolemnized about the end of April, becauſe at this time the fruits began to ſet upon the bud.

There are ſome paſſages in the ſacred writings, which add great weight to this opinion of the propagation of peſtilence from the above-mentioned cauſes: a like blaſting of the fruits of the earth is ſometimes expreſſed as the miniſter of divine vengeance upon the people for their tranſgreſſions, and particularly where the Almighty tells them by his prophet *Amos*, "I have ſmitten "you with blaſting and mildew, *&c.*" And, in the next verſe, a dreadful peſtilence is mentioned as its immediate conſequence.

There are ſeveral circumſtances in the ſteps of the infection prevailing amongſt our cattle, which add a farther probability to the conjecture: the irregularity of its advances, and the unexpected tranſitions it makes from one quarter to another, the partial prevalence of its mortality in one field, whilſt the very next incloſures remain perfectly free, amount very near to a proof, upon my underſtanding, that theſe corroſive exhalations are conveyed by the winds or clouds, caſually ſcattered, and as caſually imbibed.

The

The ſymptoms likewiſe which attend the diſorder convince me, that it is principally introduced by the breath. The cough which is introductory to it, evidences the lungs to be firſt affected, and the tumours upon the glands of the mouth and throat, may ariſe from the immediate contact and irritation of ſome ſpecies of ſalts, whoſe qualities are highly corroſive.

The reader may recollect, that in ſome preceeding part of this Eſſay, I conjectured that the cauſes of peſtilence were one and the ſame, and that the prevalence of it upon any particular ſpecies, aroſe from certain peculiar aptitudes in that ſpecies to receive it. There are ſeveral paſſages in the ancients which confirm me in this ſentiment; a mortality amongſt the horned cattle has likewiſe been looked upon as a preſage of the plague amongſt mankind; but the ſame, and many other paſſages, make this by no means certain. The calamity amongſt brutes, has ſometimes proved its forerunner, ſometimes its conſequence, at other times they have raged concomitantly; but, in a general way, their appearances have been remote and unally'd.*

Whatſoever may be the iſſue of the preſent national affliction, whether it may pleaſe divine Providence, whoſe arm ſuperintends all events, to permit that our endeavours to remove it prove efficacious; or that it ſhall yet continue in the land, as the inſtrument of his diſpleaſure and juſtice, to

* See *Ovid. Metam.* Lib. 7. *Liv.* Decad. III. Lib. 5. Cap. 10. *Silius Italicus*, Lib. 14. *Dionyſ. Halicarn.* Lib. 9.

to awaken us to a penitential ſenſe of our tranſgreſſions; whether it ſhall leave this nation in the ſame mild manner it has left the ſeveral other kingdoms of *Europe*, or more heavy and terrible conſequences are in ſtore for us, it is not only no unlawful or criminal oppoſition to the will of God, but our ſtrict and indiſpenſible duty, to make uſe of all likely and warrantable means to avert or free ourſelves from ſo heavy a calamity. The Almighty has given us powers and faculties, and has put inſtruments into our hands to deliver individuals from affliction; and the ſame means I apprehend are warrantable, when applied to remove thoſe which are national. He may ſometimes have ſeen meet to relieve his creatures by a ſpecial and imperceptible interpoſition, but as this is not the uſual method of his providence, it is no argument that we ſhould be indolent ſpectators, or ſhould ſupinely wait for indulgencies ſo unmerited.

F I N I S.